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THE demand from new subscribers for back numbers of the INDIA RUBBER WORLD having exhausted our reserves for that purpose, the publishers will be glad to pay 20 cents each for copies of the following numbers, viz.: December, 1889, January and February, 1890.

THERE appears to be some reason for the hope, on the part of the Brazilian inland city of Manaos, of becoming a formidable rival of Para as a rubber mart. An analogous case existed when New Orleans controlled the tobacco trade of the United States, that commodity being shipped down the Ohio and Mississippi rivers to the sea-board. After a time some enterprising traders became engaged in the tobacco interest at Louisville, on the Ohio, in the heart of the tobacco-growing district, and the advantage was at once seen of having buyers near the plantations and of having stores near by for supplying the planters. The building of railroads checked the shipment of tobacco by river, but in any case Louisville naturally would have outstripped New Orleans as a tobacco market, and similar relative positions are held to-day by Manaos and Para. An interesting article on their prospective rivalry appears on another page.

The Paucity of Rubber Literature.

IT happens on many occasions that some one who has a sudden and violent interest in the rubber business, and who wishes to take a short cut to an intimate knowledge of compounding, manufacturing and judging of results, writes us for a list of works that shall let him into these profound secrets.

Now, we are always willing to receive such letters, and with our whole heart will secure any printed information that we can on these topics, in which we are so deeply interested;—at the same time, we must say that with all our searching,—and it covers many years,—and with the searching of many of our friends, we find it almost impossible to get printed matter of value upon these topics.

The rubber manufacturer, to begin with, is not a man who writes out his notes. In fact, one of the most expert in this country said to the writer only recently: "How I wish I could, in some way, transmit my experience to my son. I can't write it out for him; I can't tell it to him; the only way that he can get it is to go through almost the same experience that I have been through."

And this is the gist of the whole matter. The rubber business is a simple business. It is a business in which common sense rules as well as any other, and yet at the same time, there are so many little secrets,—so many little knacks of manipulation,—so many little ramifications in it, that to reduce it to a science is something that has not yet been accomplished. There are some chemical treatises on rubber that are of interest, but we have often questioned their value. We do not find that the successful manufacturers have made particular use of them. Compound books are of little use, because the knowledge that should cluster about the compound is, after all the necessary thing.

We would say, therefore, to those who write us for books upon this matter, we do not know what to send you. We can give you the titles of a few works, but they won't teach you the rubber business. If you are bound to learn it, either get a chance to experiment in some mill, or put up a little plant of your own. Get a few general rules; find out what effects the different adulterations have upon rubber; get a general knowledge of the common gums in use; learn something about vulcanization, and experiment. If you have the faculty for this sort of work, and ordinary common sense, the chances are you will be able to succeed. If, however, you are about to enter the rubber business with

the idea that by some new and brilliant stroke of genius you are to get far ahead of the ordinary manufacturer, we would beg you, in justice to yourself, to go slowly. Of the thousands and one experiments that have been tried since the business started, less than half of one per cent. have been successful, or rather have been of any practical value. In almost every large mill to-day there is a willingness to test any new discovery in India rubber, and the verdict upon its value will very soon be reached. If one, therefore, is looking for information upon rubber, if they have any special line in which they think they may be successful; that they may aid themselves or do the business good, the very best way is to take some experienced manufacturer into their confidence, to tell him thoroughly about the discovery that they have, and to get his honest opinion about it. In doing this they will, if they have anything valuable, be taking a short cut to success. If they have discovered something that was in use years before and thrown aside as unpractical, they will soon find that out also. But as for finding books, or pamphlets, or printed matter that will let them at once into the secrets of the business, such matter does not exist, and it is doubtful if it ever will.

Insulation of High Tension Currents.

IN our last issue we drew attention in an article entitled "A Lesson from Abroad and One on the Spot" to the answers given by a number of eminent English electricians to a set of questions bearing on the subject of the hour in electrical circles—the safe distribution of high tension currents by means of underground conductors. By an unfortunate combination of circumstances the condensed abstract of the replies to which we referred in the article mentioned above, was crowded out last month, and it is, therefore, presented to our readers in this issue.

We desire to call the special attention of readers of the INDIA RUBBER WORLD to these opinions, which were incorporated with the evidence presented to the Investigating Committee of the State Senate during its recent sessions in New York City, as they bear out most emphatically the soundness of the principles in electric light line construction that have been repeatedly urged in these columns. Within the last few years only one fatality caused by contact with an electric light wire has been registered in England, where high tension alternating currents are used to a great extent, and in the case referred to it was shown that the wire was improperly strung.

The cause of this freedom from fatal accidents, which have wrought so much harm to the electrical industries in this country, is undoubtedly to be found in the strenuous advocacy of English engineers (and they practice what they preach) for sound methods of construction and the use of the very best insulating material obtainable.

These two golden threads of advice may be plainly traced all through the opinions of our transatlantic cousins; they may also be traced back through the columns of the INDIA RUBBER WORLD, and doubtlessly will be found interwoven with our future utterances on this important subject. Electric light managers certainly have learned by this time that canvas and white lead will not insulate 1000, or even a much lesser number of volts. Having mastered that lesson they probably are beginning to understand that India rubber and rubber compounds will effectively insulate at even a much higher pressure than that named. The principal hindrance to the quick assimilation and utilization of such knowledge as this is, of course, of a financial nature. India rubber costs a great deal more than canvas and white lead and must be more carefully handled, consequently many will not use it. They want to make money, not to spend it, and good construction and high-class insulation are expensive at first, though far cheaper in the end than the opposite methods, as so many electric light companies have found to their cost.

Why Wait Any Longer?

PARA rubber has gone up and up, and not content with that, it is still climbing. The cheaper grades of rubber have followed suit, so that to-day rubber manufacturers are facing a rise of 50 per cent. and all have orders that must be filled. In some lines of manufacture the prices have been raised to meet this increase in the cost of raw material. For instance, in the rubber thread works the price has been raised 35 per cent. The rubber shoe men have also agreed upon an advance. From abroad comes the news that the German rubber manufacturers have raised their prices 20 per cent. Now why should not every manufacturer of rubber goods at once do just the same thing? The public are prepared for it. In fact, it is amazing to note how well informed the general business man is upon the rise in rubber. Almost all of the larger houses that are selling rubber goods to-day expressly stipulate that they do not guarantee a continuation of the old quotations, which is nothing but a warning that prices are about to go up; but why don't they go? Certain it is that at the present price of rubber and the regular quotations for goods there is a very small margin of profit. With the fine grades of clothing that are now so popular, in which the best of stock must be used, the manufacturers owe it to themselves to charge a fair amount of profit, which the public is perfectly willing to pay. In mechanical goods, too, particularly in hose and belting, there is every reason why there should be an increase in price, for the manufacturer has to face not only a rise in rubber, but a correspondingly large one in cotton. The time has certainly come for an advance in prices all along the line, as the time will come when prices will drop again. Why wait any longer?

THE article in the last number of the INDIA RUBBER WORLD on the importance of investigating the culture of India rubber has been noticed in many quarters. The *Boot and Shoe Recorder* and the *Boots and Shoes Weekly*, which have rubber departments, each reproduced the article in full.

Para Threatened With a Rival.

THE commanding importance of Para in the rubber trade is not likely to remain long unchallenged by other cities on the shores of the mighty Amazon and its many tributaries. Nearly a thousand miles from the seaboard the Amazon receives from the South the waters of the River Madeira, 2200 miles in length, which comes from the plains of Bolivia and is one of the most important streams in South America. Further up there also come from the south the Purus, a river 1500 miles in length; the Jurua and the Jutahy, each between 500 and 800 miles, and the Javary, which for more than 500 miles forms the boundary line between Brazil and Peru. All are great rubber producers, and the output from the Purus is uniformly the best of all the rivers of Brazil. The bulk of all the rubber of Brazil comes from the Madeira and these other tributaries of the Amazon, and large quantities of it are handled, on its way to the seaport of Para, at Manaos, situated at the mouth of the river Negro, which flows from the north into the Amazon, about midway between the points where the Madeira and Purus discharge their waters.

Manaos is the capital of the province of Amazonas, just as Para is the chief city of Grao Para, and these two provinces are the most important in all Brazil. The importance of Manaos is on the increase. Its exports of rubber for instance, have grown from 1762 tons, in 1887, to 3252 tons in 1889—a gain of 85 per cent. in three years. The export trade of Para, on the other hand, has shown a constant decrease in every item except rubber. It is here that Manaos finds reason for hoping to wrest the commercial supremacy away from Para. The natural situation of Manaos is such as to give it command of the choicest trade of the valley of the Amazon, reaching to the North through the Negro and to the South through the Madeira and the other rivers named. According to the law of the growth of cities it is that port admitting sea-going vessels which is at the same time nearest to the objects of trade, rather than the one nearest the foreign market, which naturally takes the lead. In this respect Manaos is favored, since vessels of twenty-four feet draught can ascend the Amazon to that point in all seasons.

Already two lines of ocean-going ships ascend the Amazon River for the trade of Manaos. One of these lines sails direct from New York, and the number of ships, it is expected, will be increased within this year. Manaos is situated about nine miles from the Amazon, on the east bank of the Negro. In the harbor fronting the city, is a depth of fifteen fathoms at low water, and during several months of the year, the river rises from twenty to thirty feet higher. The pride of the town is an iron market building of American construction. A system of water-works supplies the people with pure water from the hills, a gas company is being organized, and an English company is establishing a cotton mill there. Manaos already imports from the United States all the flour, soap, kerosene, candles, axes and cutlery she uses, and there are possibilities for a large extension of our trade with that important port.

The chief obstacle to the growth of Manaos now is the lack of telegraphic connection with the outer world. Para, to shield her interests from any possible danger from competition, has determinedly refused to permit the laying of a cable. The Amazon River, however, is open to the flags of all nations. Para may prohibit a cable, but she cannot hinder a ship from the free use of the river. The chance Manaos has, then, is for some enterprising company to run a telegraph line up the river Negro and up the Negro's tributary, the river Branco, thence across the country to Georgetown (or Demerara) on the coast of Guiana, to which point the wires of the West Indies and Panama Telegraph Company extend.

It would require less courage to carry this into execution than captalists are now displaying in Peru, and the prospects of profits are almost, if not quite equally tempting. With daily market reports from the great commercial centres of the world, Manaos would become one of the most important of the great cities that are certain to arise in the new era which is dawning upon South America.

The facts and the suggestions contained in this article are furnished by Mr. Courtenay DeKalb, who arrived recently in New York after having followed the Amazon from its mouth almost to its source. Mr. DeKalb found time, during his absence, to write for *The Nation*, of New York, a series of letters admirable alike for their excellent style and their extensive fund of information.

IT has been noted that the consumption of leather, in the form of boots and shoes, has not increased at the same rate as the population of the country. The manufacture has been constantly improved, so that fewer hides are sufficient for a given number of shoes, but a very important feature of the case is to be found in the increasing use of other materials for footwear. The use of rubber, alone, has done much to lessen the shoe-leather bills of the country.

Every-day Work in the Factory.

BY NICK R. AUGER.

TO one question that I gave in the April number of the INDIA RUBBER WORLD, about the use of litharge, I have had several answers. The question was, "Why is litharge used?" I was able to give the results attained by the use of litharge, but exactly what the litharge did in the compounds had never been quite clear to me. Of the many answers I have received, I think perhaps the following from a Long Island manufacturer is the best. He says:

"Respecting your question, 'Why is litharge used?' I would say: Litharge, being a conductor of heat, is put in dry heat goods to conduct and retain a uniform heat right through the stock."

Several other answers relative to a chemical combination between the litharge and the sulphur, are so indefinite that I do not quote them, while perhaps there may be something in them.

It is always a matter of interest to a rubber man to get at the ideas that outsiders have about the minutiæ of rubber manufacturing, although many get a little bit of truth and think themselves wise, while their conclusions are often very absurd. A veteran manufacturer only this last week told me the following incident: He was at that time running a large rubber clothing manufactory, and as a matter of course, used considerable benzine in the cement for the coat seams. It happened one day the insurance inspector came about, and entering the room, began to sniff at the naphtha fumes. He then looked around very wisely, and, turning to the proprietor, said:

"There are some changes we must have here, sir. In the first place, at the top of the room, in several different places, you must have ventilators set which will allow these naphtha fumes to get out."

The manufacturer listened courteously, and then said: "My dear sir, will you pardon me for disagreeing with you on this point, but I wish to say that if we put the whole ceiling full of ventilators that the benzine fumes would not disappear, for the simply reason that this gas that we smell is heavier than air, and therefore it has dropped to the floor."

The insurance inspector, showing on his face that he doubted this, the gentleman climbed a ladder until he was near the ceiling, and then struck a match and held it there until it had burned itself out. He then descended and said to the inspector:

"Now, sir, I did that at my own risk. I would not stand on this floor and light a match that way for any amount of money. I wish to assert again, sir, that ventilators in the upper part of my room will do no good at all. We will do the best we can to have vents near the floor where this gas can flow out as if it were water, but as for making holes in the ceiling, or near the ceiling, it is so utterly useless that I beg to be excused from doing it."

In justice to the insurance man, it must be said that the manufacturer's experiment convinced him, and the ventilators were never put in.

Speaking of benzine, it is very natural that one should begin to think of camphene, and thinking of it, one wonders why more of it is not used. There is no question but that a camphene, carefully prepared for rubber work, is a better solvent for rubber than is benzine. In making seams for rubber coats, in any sort of cemented work, camphene is as far ahead of benzine as Para rubber is ahead of African Flake. It evaporates more slowly, it leaves none of the little blisters or vesicles that the benzine leaves in the rubber, and it forms the strongest rubber cement known. Further, there is no doubt that it has much less destructive effect upon rubber than benzine has. Of course, the first cost of camphene is much higher than is the cost of benzine, but as the loss in evaporation from barrels and cement kettles is so much less, the difference after all is not one of great moment. We are aware, of course, that almost every factory of any pretension uses more or less camphene, but the cheaper solvent is the popular one, and very likely always will be, though we cannot forbear these few remarks.

An honest appearing man entered the office of a large manufacturing concern not long since with a sample of cloth covered with what appeared to be a fine quality of rubber. He said he had a secret process for making a compound that gave that result, that there was not a bit of rubber in the compound, and that it cost but a few cents. At first his statements were received with suspicion until under careful scrutiny the manager came to the conclusion that the cloth was *not* rubber covered, and that it was some new and secret compound. To tell the truth, as he felt of the sample and noted the beautiful glove finish, the elasticity and its freedom from odor, his heart beat high with expectation, and he was fain to offer a big price on the spot for the possession of the secret. He had, however, a bump of caution, and it had grown large through many years experience in rubber, so he told the inventor to come in again, and he retained a sample of the cloth. The inventor left after another appeal for instant action, and the sample was placed on the desk of the manufacturer. A month passed, and one day the gentleman reached up for the cloth with the glove finish and the freedom from odor, and found, to his surprise, a dull, crackling sample, harsh and ill smelling. At first he could hardly believe it to be the same, but certain marks on the uncoated side convinced him. Now, although he rejoiced that he had not purchased this worthless formula, he could not but wonder, Yankee like, how the first result had been accomplished. His questions were all answered one day, however, when in an experimental mood he mixed some glue and glycerine with a little black and spread it upon cloth. He has the formula, but he doesn't dare use it.

Rubber Exports From New York.

THE exports of domestic manufactures of India rubber and gutta percha from the port of New York during April, 1890, were as follows:

Boots and shoes (1133 pairs)	$ 1,233
All other manufactures	48,879
Total	$50,112

The principal exports of manufactures other than boots and shoes were as follows:

France	$5,800
Germany	6,425
England	4,030
Scotland	6,408
Australia	3,120
Japan	5,909
Mexico	2,178
Netherlands	4,370
Cuba	1,993
United States of Colombia	1,651

A NEW scheme in the West is the renting of fire hose to those towns that are too impecunious to buy it outright. The next thing will be the renting of plows and harrows to farmers, or hammers to carpenters.

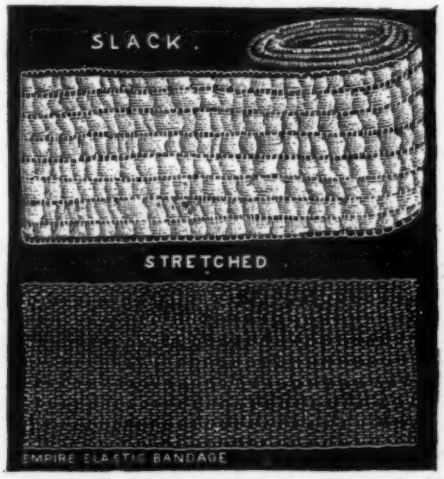
New Goods in the Market.

TO MANUFACTURERS AND PATENTEES:

It is our aim to embody in this department descriptions and illustrations of all the latest novelties introduced in the market, to the end that jobbers, retailers and buyers of rubber goods generally may look here for information as to everything new that each month or season brings forth. Manufacturers and patentees are, therefore, most cordially invited to co-operate with us in making the department as complete and attractive as possible—the distinct understanding being that no charge whatsoever, either direct or indirect, will be made for these publications. Our reward will come through giving our readers valuable information; and that will be reward enough if manufacturers but give the information freely and in all cases at the earliest practicable moment.

In forwarding descriptions of new goods, be careful to write on one side of the paper only; be brief, but always write enough to give the buyer a clear idea of the article you offer; give your full address, plainly written; and in all cases send a small illustration or wood cut if you have one.

THE Empire elastic bandage, which is here illustrated, has the following strong points: 1st. Its porosity. It never causes itching, rash, or ulceration under the bandage. 2d. Its elasticity, which will enable the surgeon or nurse to put it on at any required tension, and which will follow a swelling up or down, as the case may be, a feature unknown to any other band-

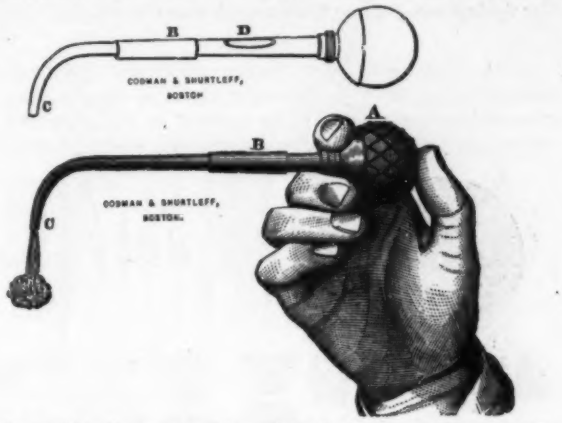


age. 2d. Its absorbent properties. 4th. Its easy application to any part of the body, not being necessary to fold it over, as with other bandages. 5th. Its self-holding qualities. No bother with pins, needles and thread, or strings, or tiresome to surgeons, as simply tucking the end under the last fold insures its permanent stay, until its removal for purpose of cleanliness. 6th. The only bandage that is superior to the elastic stocking for varicose veins. Manufactured by the Empire Elastic Bandage Co., Lockport, N. Y.

—The tasteful metal box in which the Davidson Rubber Company put up their dental dam is illustrated herewith. The

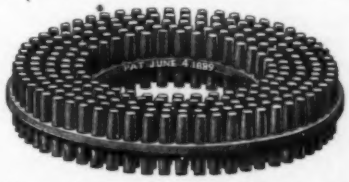
strips contained in each package are fifteen feet by six inches, and are made of the most carefully prepared pure Para rubber. Manufactured by the Davidson Rubber Company, Boston, Mass.

—An improved Powder Insufflator is herewith illustrated. It consists of a metal tube, which may be either straight or bent, attached to a net-covered rubber bulb. The powder is placed in the cavity D, the slide B is slipped over it, and the powder



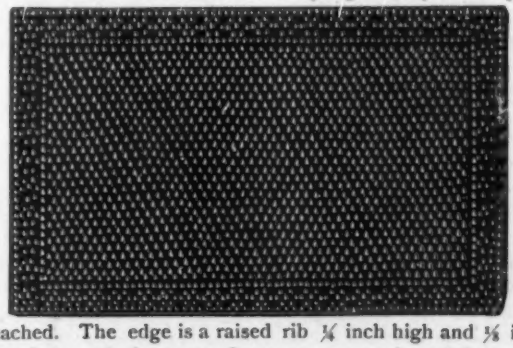
discharged by the compression of the bulb, A, as shown at C. Manufactured by Codman & Shurtleff, Boston, Mass.

—A teething ring that sold more than 30,000 the first month it was on the market, and that is to-day the most popular ring in existence, is shown in the accompanying illustration. It is made from pure Para rubber and is perfectly tasteless. When in use, the flat ended teeth serve to expand the skin of the gum,



softening the latter, thus aiding the coming tooth and allowing perfect circulation of the blood without irritation. Manufactured by C. J. Bailey & Co., Boylston Building, Boylston Street, Boston, Mass.

—The Indestructible Mat here shown has been placed upon the market in the belief that, though somewhat higher in cost than the ordinary mats, it will nevertheless find a ready sale on account of its superior merits. The mat is a series of projecting cone-shaped points, placed ¼ inch apart, ⅜ inch in height, and ¼ inch diameter at the base, which taper gradually till the point



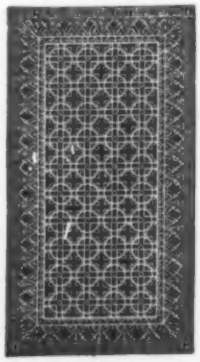
is reached. The edge is a raised rib ¼ inch high and ⅛ inch thick. It is made from very fine pure gum stock, and the points are so flexible that they allow of the sides of the foot being cleansed. On account of the fine material used, and the flexibility of the points, it will prove almost indestructible. Aside

from its merits as a door mat, it will be found very desirable by bank clerks, cashiers and others who have to stand at their work, as it is as soft under the foot as an air cushion. Price, 18 x30 inches, $60 per dozen. Manufactured by the New Jersey Car Spring and Rubber Company, Jersey City, N. J.

—The Corrugated Soft Rubber Disks and Points shown here are a new departure in many ways. In the first place the corrugations are found to be far superior to plain surfaces. In the second place, the abrasive material that is incorporated into

their substance vastly increases their working qualities and durability. They are used for carrying powders either for polishing natural teeth or finishing fillings. Manufactured by the S. S. White Dental Manufacturing Co., Philadelphia.

—The great popularity which rubber mats have enjoyed for several years past has been increased by the constant application to their manufacture of the best efforts of inventive genius. A handsome catalogue of designs in rubber mats and matting manufactured by the Gutta Percha and Rubber Manufacturing Co., of New York City, may almost be regarded as a work of art, so handsome are some of the designs shown. These designs have been specially adapted to withstand the unusual wear and tear to which such mats are subjected. A further advantage in the



use of these goods is due to good material and good workmanship. Perforated mats are made by this company, to order, of any size or shape, in a variety of patterns, and with either plain, corrugated or plate surface. These mats are particularly adapted for use in public halls and houses, hotels, elevators, steamboats, street cars, railroad cars, warehouses, etc., or where there is constant traffic, or wet and variable conditions. The company makes also corrugated rubber matting in rolls one yard wide and about thirty yards long, and cut to order in treads or in any size or shape desired. This is suited for halls, aisles and public stairways. A full list of designs is shown in the catalogue referred to. The smaller of the two designs shown here is the No. 8 mat, 15x18 inches, at $28.50 per dozen. The other cut shows the No. 9, 17x31 inches, at $30 per dozen. Besides the office in the Para building, this company have branches in Chicago, San Francisco and Portland, Oregon.

—A new lining in Arctics, and one that has elements of great popularity, is shown in the above cut. How many cases of goods of this kind the Wales-Goodyear Co. intend to manufacture this year we do not know. At present there is only one case in stock, which is the one photographed. This is the

production of Mr. Chester J. Pike, the General Selling Agent, and we do not hesitate to label it the prettiest and cutest specimen of new goods we have yet seen.

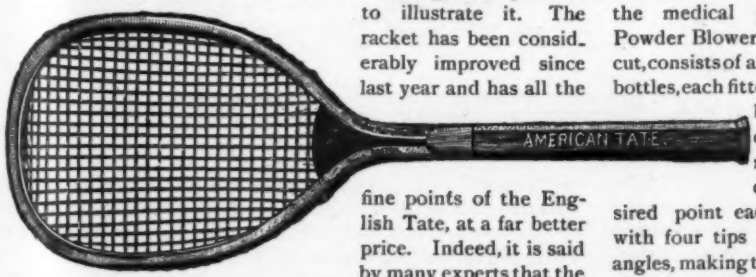
—A tennis ball that can secure official adoption by the United States and Inter-collegiate Lawn Tennis Associations must certainly be a good one. It must, in fact, be better than "good"—it must be a beautiful piece of rubber work. In goods of this kind there is a deal of care taken to have the ball exactly the

right weight, to see that it is lively enough, and yet not too much so; in short to have it right in all particulars. The best tennis players have declared the Wright & Ditson ball the best, and what they say "goes." Manufactured by Wright & Ditson, Boston, Mass.

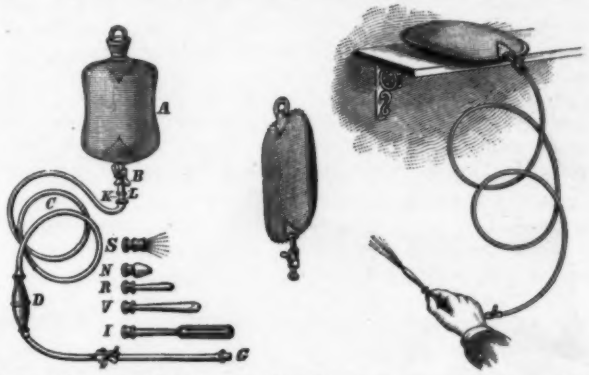
—A handsome vessel of that peculiar shade of golden yellow which only the best Golden Sulphuret of Antimony gives to rubber, is Codman & Shurtleff's New Hospital Basin. It is for the use of the surgeon in amputations, and is made of rubber rather than metal, because it is much easier to clean, and can never make a clatter, nor in any way trouble the most nervous. It is made by Codman & Shurtleff, No. 13 Tremont Street, Boston.

—Just now when the yachting season is commencing the following letter will be of interest: "BOSTON, April 13, 1888. DEAR SIR: We have used your Air Mattresses on our yacht *Gypsey*, for one year. We are much pleased with them. They are well adapted for use on yachts for the reason that they seem to be absolutely impervious to moisture. We think they make a superior cushion, better than one made from hair or any other material that we know of. The Life Saving Collars we use for cushions on deck. They are useful in that way, and seem to be perfectly adapted to the purpose for which they are made. Respectfully yours, UPHAM & PROCTOR." It is but just to say of these mattresses that afloat or ashore, they are the acme of comfort. Few know what genuine rest is until they have tried them. We are aware that this is strong praise, but we honestly believe that the goods deserve it. Other features of these goods were described in the INDIA RUBBER WORLD for April. Manufactured by the World's Air Mattress Company, No. 99½ Summer Street, Boston, Mass.

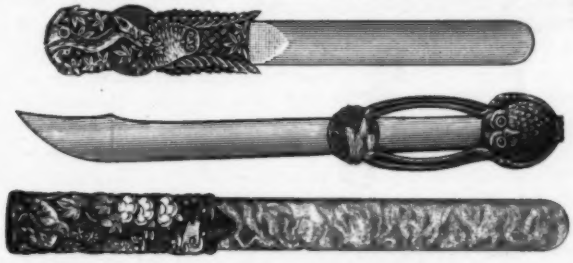
—In the April number of the INDIA RUBBER WORLD, we described the American Tate Racket, and it now gives us pleasure to illustrate it. The racket has been considerably improved since last year and has all the fine points of the English Tate, at a far better price. Indeed, it is said by many experts that the American Tate is ahead of its English cousin. Manufactured by Horace Partridge & Co., Boston, Mass.



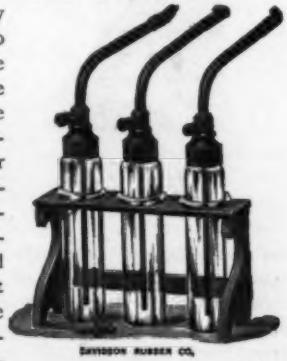
—Mattson's Combination Fountain Syringe is fully illustrated in the accompanying cuts. The small cut shows the bag detached from the syringe, to be used as a water bottle. The neck and stopper are made of hard rubber, rendering them light and durable, so that they do not burn the hands, like brass or metal. The bag may be filled through the nozzle with a pitcher or from the faucet; the improved mode of filling the bag siphonically through the tubing is considered a great convenience. After the bag is filled it may be carried to any part of the house for use, as there is no danger of spilling the contents. The bag may be hung from a peg, or placed on a mantel or shelf, or may be laid in a chair, and used by hand-pressure. Manufactured by the Atlas Rubber Company, No. 68 Park Place, New York City.



—Anything that can equal in delicacy and beauty the celluloid paper knives here illustrated would be difficult to find. The blades, made of celluloid, resemble the most beautiful effects in ivory, horn and tortoise-shell. The handles are of metal; being silver, gold or composition, according to price. Made by the Celluloid Novelty Company, New York City.



—The Davidson Powder Blower, No. 195, is designed especially for office use by physicians, and is intended to be used in connection with the No. 65 Spray Tubes, which are well known to the medical profession. The Powder Blower, as shown by the cut, consists of a rack holding three bottles, each fitted with a hard rubber tube, and for convenience in directing the powder to the desired point each tube is fitted with four tips bent at different angles, making the most complete instrument of the kind ever offered to the profession. The instrument is designed for use with the Sass Condenser, but it works equally well with an ordinary hand bulb. Manufactured by the Davidson Rubber Co., Boston, Mass.



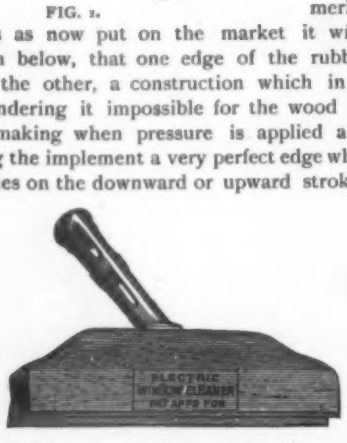
—With the advent of warm weather come a thousand little annoyances that one would fain avoid. The postage stamp that sticks to the lining of the pocketbook is one of those. With true charity the Mason Regulator Company of Boston, have gotten up a little case with leaves of tissue, so soft and slippery that no mucilage will stick to them, and are giving these out to their friends, right and left. If you don't possess one of these stamp packets send for one.

—This is one of the latest tennis shoes, and is made with an extra heavy rubber sole, that bears evidence of being extremely good stock. It is used by the well-known court tennis champion, Mr. Thomas Pettitt, and is called the Pettitt Match Shoe.

It is made of heavy brown canvas, trimmed with French calf, and soled with red rubber. Wright & Ditson, Boston, Mass.

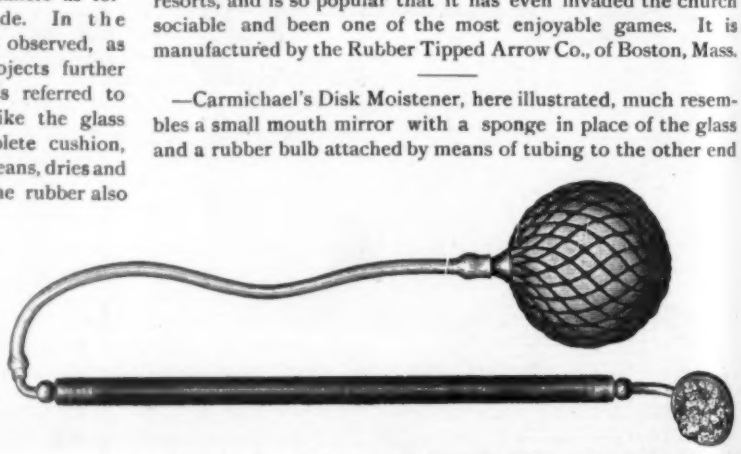
—A new improved electric window cleaner is manufactured by William Cunningham, No. 88 Chambers Street, New York. Fig. 1 indicates the manner in which the rubber is attached, being inserted in the groove in the face of the cleaner and fastened in by means of a strip of wood, which is attached by nails as indicated. This feature of construction, which obviates the use of glue and secures durability, was possessed by the cleaners as formerly made. In the goods as now put on the market it will be observed, as shown below, that one edge of the rubber projects further than the other, a construction which in use is referred to as rendering it impossible for the wood to strike the glass and making when pressure is applied a complete cushion, giving the implement a very perfect edge which cleans, dries and polishes on the downward or upward stroke. The rubber also projects slightly beyond the ends of the block, allowing the cleaner to be applied close to the woodwork of the window. The handle is attached by a single screw and a spur on the under side, thus securing firmness of attachment and at moderate cost. They are made in 9, 10, 12, 14 and 16 inch sizes, at $4.20, $4.80, $5.40, $6.00 and $6.50 per dozen, with 50 per cent. discount. A sample of the 10-inch cleaner will be sent postpaid for 25 cents.

FIG. 1.



—It is not often that a toy is so popular that it is alike appreciated and enjoyed by the old and young. The rubber tipped vacuum projectile, however, which we illustrate here, is something that pleases the whole family, from the father and mother down, or from the tot of six years up. The cut of the six individuals that we append, each of whom is holding one of the vacuum pistols, is not imaginative after all, for we have seen persons of all ages using this toy and enjoying it. One thing that commends it to almost every one is its absolute harmlessness. The arrow which is discharged from this little pistol is tipped with a rubber cup, which, when it touches any flat surface, at once clings to it. The pistol is not charged by powder, or by anything explosive, but by a single automatic spring, which gives it the required pressure to send it fifty to one hundred feet. Probably no toy that has been gotten out in years has been so fashionable as this has. It is to be found in all pleasure resorts, and is so popular that it has even invaded the church sociable and been one of the most enjoyable games. It is manufactured by the Rubber Tipped Arrow Co., of Boston, Mass.

—Carmichael's Disk Moistener, here illustrated, much resembles a small mouth mirror with a sponge in place of the glass and a rubber bulb attached by means of tubing to the other end of the handle. It is charged by placing the sponge in a glass of water and compressing the bulb, after which, when corundum disks are in use, it is to be held in the left hand with the bulb under the ends of the fingers. In addition to keeping the disk wet it acts as a guard for the cheek or tongue. The inventor claims that it will keep the filling or tooth free and clear from grit, and will prevent any spattering of water or blood upon the operator or patient. Manufactured by the S. S. White Dental Manufacturing Co., Philadelphia.



Methods of Gathering Rubber.

INDIA rubber is the solidified sap of a tree, principally found in South America. It is of a soft, gummy nature; very elastic; and is easily decomposed by oily substances. Gutta percha, which is found only in the East Indies, is obtained from the gutta tree. It is a brownish gum, which solidifies by exposure to the air. There are different varieties of rubber trees and widely different qualities of gum. For many goods only the best of rubber can be used, such as comes from Para, a province of Brazil. But there are rubbers so poor, so dirty and so sticky that they can be used only in the poorest classes of goods, or in articles in which elasticity is not an important quality. The second grade in quality is from the Amazon River, on which hundreds of square miles are covered with the forests. There is also a very good quality found on the island of Madagascar. Inferior grades come from Carthagena, Central America, Assam, Java, Borneo, Africa and other places. These inferior rubbers are sent to our markets very much adulterated, or rather loaded, with clay, bark and sand. This is, without doubt, done by the natives, who are paid so much per pound for gathering it.

The chief occupation in the interior of Brazil has become the gathering of rubber, a wild business, for which the Indian is well adapted. The rubber gatherer makes three or four incisions an inch wide with a narrow hatchet, cutting barely through the bark of the tree. Under each incision he causes a little tin cup to adhere by a bit of moistened clay. Into these cups the *borracha* (rubber) milk exudes from the wounds. He goes from tree to tree doing the same, until he has tapped as many as he can conveniently attend to in a day. He then returns to the first tree and goes the round again, collecting the milk into a bucket. Each gash will yield from two to three tablespoonfuls of the sap. This will soon coagulate if not "smoked," which process consists in pouring the milk over a paddle or round stick, and passing it through the smoke from a fire of palm nuts, which causes it to thicken. More milk is poured upon the paddle, and treated similarly, until the successive coats have made a large ball, often eighteen inches in diameter, called *a pelle*. The peculiar virtue of the smoke used has not been investigated, but the answer of an Indian that it is *o pungimento* (the pungency) is significant. The smoke of wood will not serve. Great care is needed in the operation lest part of the rubber should coagulate. When this happens, the product is termed "extra fine," which is the middle grade between "borracha fina," the best, and "sernamby," which is the inferior, wholly coagulated material, as it is found oozing from the trees. Efforts are now making to discover means for preserving the milk and shipping it in the fluid state; but some device to insure perfect "smoking" would perhaps be an equally satisfactory solution of the problem if the natives could be taught to use it. This description is furnished THE INDIA RUBBER WORLD by an eye-witness, Mr. DeKalb, who has just returned from Brazil.

INDIAN "SMOKING" RUBBER.

A writer on the method of gathering rubber in Central America says: Rubber hunters go in companies to the interior at the beginning of the rubber season, each provided with a coil of rope and iron climbers, such as telegraph linemen use. Before beginning operations on his tree each man cuts a few lengths of bamboo, in which to catch the milk as it falls from the simple spout he will fix in the side of the tree; or it may be he will dig a hole in the earth close to the base of the hule and catch the milk in that. Then the rope he carries is passed around his waist and the bole to form a loose loop. Having cut two notches which nearly encircle the tree and meet to form a point on the side nearest him, the rubber gatherer sticks a bit of leaf into the junction so formed and the spout is made. With a dextrous flirt he throws the loop of rope up, braces back in it and walks up a step, makes another V-shaped notch and repeats the operation until the branches are reached.

By the time the topmost cut is made the others are bleeding profusely, and a creamy stream is filling the bamboo. When this is nearly full it is corked by a wad of leaves, and set aside to wait until others have caught all the milk that will flow from this cutting.

When the milk ceases to flow, each cut in the bark is coated by a thin film which dries in the course of a few days. The rubber gatherer then climbs the tree again, and strips this barnche from the gashes and winds it into a roll. As it is usually free from adulteration the barnche is considered to be the best of that rubber crop. About once in three months a raft is made of light timber and the product of the labor of the company is floated down to the seaboard, where dealers are found ready to buy it.

ADVERTISING in the INDIA RUBBER WORLD produces quick results. A Massachusetts young man who advertised in the last number for a position in a rubber store, writes from Rochester, N. Y., that he met with instant success, having secured a situation there.

How Rubber Mouthpieces are Made.

THE manufacture of vulcanite mouthpieces for pipes is an industry of which but little is known either by the trade or the general public, but it is large enough to give employment to a large number of people. The factory of F. J. Kaldenberg & Co., of New York, makes a specialty of manufacturing them for use on the premises. The finest Para rubber is used, and the first process is the making of tubing of the thickness of a lead-pencil and an inch and a half in length. In the fitting room a number of bright, clean-looking girls get the tubes ready for the moulders. The girls pick up two pieces of tubing and join them together by a piece of smaller diameter, and further strengthen this piece and the joints by strips of rubber curled around wherever necessary that the mouthpiece should have its greatest strength. All these pieces are laid on with a "needle" and wet fingers. The result is a queer-looking botch of rubber, thin at each end and thick in the middle, like a

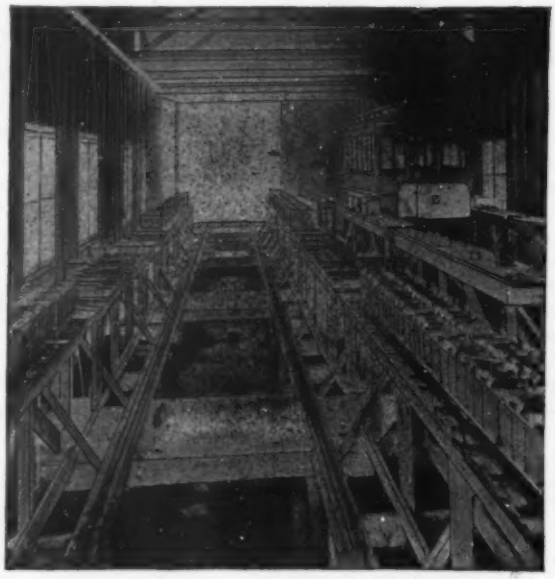
lead pencil with a quantity of wool wrapped around the centre.

The two ends of the tube are then closed with discs of rubber, after the interior has been filled with water. These shapeless, rough-looking masses of rubber are laid in moulds and sent to the oven, heated by steam to 250° Fah., where they are kept for twenty-four hours. The heat cooks the rubber and the compound with it, and this forms vulcanized rubber. The greater the heat to which it is subjected the harder it gets. The moulds when they go into the heat contain straight, shapeless rubber combinations, but the heat, expanding the water in the hollow tube, creates such a pressure that the rubber is forced tightly into every corner and hollow of the mould, and a perfectly symmetrical pair of mouthpieces with screws attached is the marvelous result of the clever application of an extremely simple chemical or mechanical problem. Next emery wheels and soft leathers are used for polishing, and a piercing machine finishes the end of the mouthpiece which is to enter the mouth.

This firm also manufactures rubber tobacco pouches of all kinds, and of late has been making the self-closing Prince of Wales pouch, which has so long been the monopoly of the English manufacturers.

An Electrical Charging Station.

THROUGH the courtesy of the Beverly & Danvers Electric Railway, we are able to present our readers with a view of a charging station for their storage batteries. It is situated in the car house, 90x40 feet, and is arranged in a most practical and convenient manner. The batteries, containing twelve hard rubber cells each are placed in a line of tables flush with the track, so that they are easily drawn into the cars. There are four tables on either side of each track, the two opposite tables containing a set of twelve trays, making 138 cells for every set, each car being provided with two such sets. To insert the cells the car sides are let down and the six cells on each side are put into the car—the discharged set having been first withdrawn on the cars coming into the station. Each set of batteries is able to run a car forty miles with a single charge, and with two sets a car can make eighty miles a day. To operate this system it costs but 4½ to 5 cents per mile for each car, and that it is entirely practicable has been demonstrated during the past five months, as it has worked in rain and snow, in heat and cold, with perfect success.



ELECTRICAL CHARGING STATION.

A Big Order for Rubber Belts.

THE New York Belting and Packing Company furnished the many large belts for elevator "A" of the New York Central & Hudson River Railroad Company, which was destroyed by fire about a year ago They have also received the order for belting required in the new elevator to take its place. This is a notable order, because it is probably the largest order for belting ever given to any one concern, and because of the large number of immense belts contained therein. The specifications show the aggregate number of belts called for to be seventy-one, and in this there is one order for 19 elevator buckets-belts, each 313 feet long, 22 inches wide and 5-ply thick.

The main driving belt will exceed these in length, width and thickness, as it will be 350 feet long, 52 inches wide and 8-ply thick. There are also to be nine conveyer belts, each 98 feet long, 30 inches wide and 4-ply thick, and nine shipping elevator driving belts 68 feet long, 20 inches wide and 6-ply thick. The specifications also include five cleaner elevator bucket belts, each 117 feet long, 22 inches wide and 5-ply thick; five cleaning elevator driving belts 68 feet long, 12 inches wide and 5-ply thick; five cleaning machine fan driving belts 45 feet long, 10 inches wide and 4-ply thick; five cleaning machine driving belts 37 feet long, 16 inches wide and 5-ply thick, and five cleaning machine screen driving belts 32 feet long, 10 inches wide and 4-ply thick.

This is not all. The other belts called for are two dock elevator driving belts each 165 feet long, 10 inches wide and 6-ply thick; one dock elevator bucket belt 126 feet long, 16 inches wide and 6-ply thick; one dock elevator driving belt 106 feet long, 18 inches wide and 6-ply; another for the same purpose measuring 76 feet long, 18 inches wide and 6-ply, and one shovel machinery driving belt, 98 feet long, 20 inches wide and 5-ply. The list closes with one conveyer machinery driving belt 87 feet long, 22 inches wide and 5-ply thick, and one conveyer and shovel machinery driving belt 90 feet long, 32 inches wide and 6-ply.

The specifications stipulate that: "All the foregoing are to be the best quality of goods that are manufactured, and are to be made of the best 32-ounce cotton duck, and Para rubber. The belts are to be pliable, and thoroughly stretched and pressed, leaving a smooth, hard-finished outside surface. They are all to be full width, length and standard weight. Each belt is to be stamped with the name of the manufacturer and their brand, which brand shall indicate that the goods on which it is stamped are the best quality of such goods that they manufacture."

The New York Belting and Packing Company are required to have this large order filled by May, and owing to their superior facilities at their immense factory at Passaic, N. J., they will no doubt be able to do so. The new elevator "A" will be located at the foot of Sixtieth Street, North River, New York City, and constructed by Messrs. J. T. Moulton & Son, grain elevator architects and builders, of Chicago, Ill.

REPLYING to many important inquiries, we wish to say distinctly that the new *World* building in New York is not ours. The INDIAN RUBBER WORLD is satisfied with offices in the Tribune Building, and is neither planning nor paying for the huge structure that overshadows the west end of the Brooklyn Bridge.

Interior Electrical Conduits.

ONE of the chief enemies that incandescent electric lighting has had to contend with is defective insulation of the inside wiring of buildings where the light is used. The insulation is not always defective in the sense of being of inferior quality, although no doubt there is much of this in the cheap work put in by unprincipled contractors, but even the best grades of insulation are not proof against the effects of overheating of the conductors when crosses and short circuits occur. Such accidents cause the insulation to melt and frequently to burn, with the natural result of setting fire to adjacent woodwork or other combustible material. It is a matter of common knowledge that fires originating in this manner are of far too frequent occurrence, and any device aiming at a diminution of this danger cannot but be heartily welcomed by all who have the interests of the electrical industries at heart.

Such a device is embodied in the system of the Interior Electrical Conduit Company, of New York, who have perfected a system of running wires in the interior of buildings which possesses several novel and ingenious features and insures perfect immunity from fire risk to the user of the electric light. The basis of the system, as the name of the company denotes, is the adoption of "interior conduits" consisting of specially prepared insulating tubing in which the wires are run in the walls, ceilings and floors of buildings where the electric light is used. The arrangement of the tubing has been well worked out in every detail; as the subways in the streets have their manholes and subsidiary ducts, so the interior conduits have their hand-holes or junction boxes, branches and elbow joints for turning corners awkward or otherwise. Besides, the conduits the company have also elaborated a "safety" conductor to be used in conjunction with them, so that their specialty is a complete system for safe inside wiring.

The raw material employed in the manufacture of the tubing is paper or papier maché, prepared by a special process; this material is subjected to treatment with an insulating compound containing bitumen and asphalt with which the tube is thoroughly impregnated, thus rendering it impervious to moisture and endowing it with insulating properties of a high order. The completed tube is perfectly smooth both inside and out, offering no obstacle to the drawing in of wires, and easy to handle and place in position. The tubes are made in sizes varying from ½ to 1¼ inches, these being the inside diameters. Elbow joints for turning corners, junction boxes of all sizes and styles, ceiling-connecting boxes and side outlets of various designs unite in rendering the system complete in every detail. The tubes are intended to be placed beneath the plaster or under the flooring and are secured by means of staples to the woodwork or beams. The junction boxes are situated wherever convenient and the tubes lead directly into them, all that is visible being the covers of the junction boxes, which can be made to suit any style of decoration. For making joints between two lengths of the tube couplings to overlap the ends to be jointed are supplied together with a compound to be run in hot and "wiped" at each side of the coupling, much in the manner of a plumber's joint. Care is necessary in making these joints in order to secure a waterproof union and to avoid forcing the compound inside the tube, thereby leaving a rough edge which might obstruct the free passage of the wires, but where the maintenance of insulation is concerned the most scrupulous care in making joints and connections is always necessary. It will readily be seen that a building equipped with this system is provided with a miniature subway service of its own, giving perfect control over the wiring and constituting an absolute safeguard against all danger of fire. Running the wires, inspecting them or drawing them out when necessary are operations which in this system are simplified to the last degree. At any of the junction boxes a fishing or drawing-in wire can be inserted into the tubes and through to the next hand-hole or outlet; the insulated wire can then be attached and drawn through in its turn, and so on with all the sections of tube until all the wires are in place. The junction boxes afford convenient means of inspecting the wires at numerous points, and if at any time it is necessary to draw a wire out, this can easily be done by detaching it at one box and pulling back from the next. Thus it will be seen that the system of conduits, once installed, renders the job of wiring a building one of great simplicity, and affords besides, accessibility for inspection or alteration and absolute immunity from fire originating in the overheating of the conductors.

To emphasize this point, which is one of the principal claims made in favor of the system, some interesting tests were recently made. In one of the experiments a circuit was made consisting of a wire, insulated with rubber compound, half of which was suspended in the air and the other half run through the tubing. A current beyond the carrying capacity of the wire was sent through the circuit, and in a short time the insulation on the part of the wire suspended in the air was blazing; smoke issued from the tube but no flame was observed. When the wire finally fused, the tube was cut open and the rubber insulation was found to be completely charred and reduced to ashes, but the taping was almost uninjured and the interior of the tube exhibited no trace of damage whatever. The small quantity of air in the tube having been rapidly exhausted by the combustion of the rubber and the ash acting as a non-conductor of heat, the hot wire was unable to do any further harm. A number of other tests have been made, the results in every case confirming those described above.

The safety conductor, which forms part of the company's system, consists of two wires insulated with cotton, twisted together, covered with waterproof insulation and braided, forming a twin conductor easy to manipulate. If a leak, so dangerous and subtle a source of trouble in electric light installations, forms in one of the wires, it rapidly develops into a short circuit, causing the safety fuses to be blown out at once and indicating the locality of the trouble, which, by reason of the accessibility of the conduits, can be easily and quickly remedied.

As our readers can judge from what we have written

above, the system is practical and offers many advantages, and as an additional, and even in these days of fierce competition, indispensable recommendation, it is economical. The material from which the tubes are made is cheap and the processes have been brought down to a fine degree of simplicity. The work of putting in the conduits is of the simplest description, requiring only that amount of care which should be expended on all operations connected with the installation of insulated wires.

English Authorities on High Tension Underground Circuits.

DURING the recent investigations of the New York Senate Committee on General Laws into the question of electric lighting in New York City, the answers made by prominent English electricians to questions bearing on the subject were submitted as evidence. The questions were compiled by Professor Henry Morton, of the Stevens Institute of Technology, and were addressed to Sir William Thomson, Professor George Forbes, Dr. John Hopkinson and W. H. Preece, all of whom responded in a manner which must have been highly gratifying to the advocates of high-tension distribution. This subject is of special interest to manufacturers of wires and cables as well as to all others connected with the electric lighting industries, and we feel sure that our readers will thank us for publishing below a condensed abstract of the symposium :

Question 1.—Can high tension direct and alternating currents be safely and successfully distributed by means of underground cables? If so, up to what voltage can this be done?

To this Sir William Thomson says: "Yes, I believe so, up to 2500 volts."

Professor George Forbes says: "We have ample proof that high pressure electric currents, either direct or alternating, can be distributed safely and successfully by means of underground cables. Our experience in the past has been limited to 2500 volts, as a maximum, and up to this pressure there has been no difficulty whatever, in any case where care has been taken to secure a good and durable type of insulation to the conductors, and to protect them from mechanical, chemical, and other sources of deterioration."

Dr. John Hopkinson says: "It has been conclusively proved that alternating high tension currents can be supplied without inconvenience by means of underground conductors, if the work is properly done."

W. H. Preece says: "I see no difficulty whatever in maintaining such a system of distributing currents by underground cables, and I form that opinion from actual experience and not from mere theory. Underground cables are safe, durable and efficient. I have had full experience of high pressure alternating current systems which have been working for years without accident or failure."

Question 2 is directed to elicit actual information referring to specific instances where high tension currents are distributed by means of underground conductors, the duration of cables, voltage employed and number of lights operated.

Sir William Thomson: "My opinion is primarily based on general knowledge of the insulating power of materials used for insulating the conductors of submarine cables and electric light systems, and of measurements made in my own laboratory of voltage required to break down insulation of different kinds. A very small thickness of insulation suffices to resist 2500 volts, and practically moderate thicknesses are not broken down with 5000 or 6000 volts, and are very safe with 2500, whether direct or alternating."

Professor George Forbes cites various central stations which have been distributing high-tension currents through underground conductors for several years past. The London Electric Supply Corporation works at a pressure of 2400 volts (alternating), and has several miles of underground cables, which are of the best quality of vulcanized india-rubber, laid in cast-iron pipes. A number of other stations in London, provincial towns in England and other parts of Europe, all using alternating currents at a pressure of 2000 volts, or over, and distributing by means of underground cables, are referred to by Professor Forbes, who also cites the case of the Silvertown Telegraph Works, where high-tension continuous currents have been worked through underground cables for about eight years without any trouble. The insulation is high-class vulcanized india-rubber. Professor Forbes says in conclusion: "In all of these cases the cables have worked satisfactorily. There has been absolute safety, hardly ever any irregularity in the supply, and remarkable freedom from fires."

Dr. John Hopkinson cites numerous instances where underground cables are in use in London for distributing alternating currents, the pressure employed varying from 1000 to 2400 volts. The type of cable used is the Silvertown vulcanized india-rubber, the cables being laid in iron pipes. With these cables there has been no trouble of any kind, either in the way of breaking down of insulation or of shocks. For overhead distribution the cables are carried on separate steel bearing wires, which are run on insulators and to which the cables are secured by leather slings.

W. H. Preece says: "The distribution for the high-pressure alternating current system in England is safely and successfully effected both by means of continuously well-insulated and properly suspended overhead cables and by means of thoroughly well-insulated conductors buried underground in pipes. The voltage used is generally from 1800 to 2400 volts."

Question 3 refers to the character of the cables used and the manner in which they are laid.

Sir William Thomson in answer to this question gives a draft specification for a concentric cable, but cables of this type are not used much in England, although the mains for Mr. Ferranti's 10,000 volt station at Deptford are to be concentric.

Professor Forbes deprecates the use of concentric cables, awarding the preference to the Silvertown vulcanized india-rubber cables, which are so much used in England. The vulcanized india-rubber cables are laid in wooden boxes, concrete troughs, or iron pipes. The last of these plans

is the most generally adopted. Vulcanized rubber can only be used when of the best material. It then cannot be excelled. Its quality for durability may be judged by tests of its insulation resistance.

W. H. Preece: "My view is that there is nothing more practical than 4″ or 6″ cast-iron pipes, laid from one to three feet under ground, in which thoroughly well-insulated and well-protected copper conductors are drawn. There are several insulating materials in the market capable of insulating 2000 volts, but my experience is chiefly with india rubber. I see no difficulty whatever in maintaining a pressure of 2000 volts in underground conduits. It has been done for eight years in Eastbourne." In one of his replies Mr. Preece accentuates his remarks by saying: "I do not express my opinion lightly on this subject. There are about 30,000 miles of underground insulated wires of the United Kingdom under my control, and I have had thirty-seven years' experience of such wires. I venture to think that this experience is unique in its continuity and extent."

Asked to state their opinion as to the safety to the consumer and the public at large of the converter or transformer system of electric lighting, all four authorities agree in emphatically recommending it, as with proper precautions in construction and maintenance, securing complete safety to the consumer. With regard to relative fire danger in the transformer system and in the low tension direct current system, respectively, opinions differ slightly. Sir William Thomson says that in the event of an escape of gas in the neighborhood of high-tension mains, the high tension alternating current may cause an explosion; but probably not so the low tension direct current. Indoors the danger of fire is not materially different in the two cases. Professor Forbes considers the balance of risk rather on the side of the low tension direct current system. Dr. Hopkinson and Mr. Preece say that there is practically no more danger of fire from the one system than from the other, and all four gentlemen unite in saying that with proper precautions both can be made absolutely safe.

An interesting piece of information bearing on the preference given to the high-tension transformer system of supply by the London Central Station companies is that the paid-up capital of the companies using this system is 91.6 per cent. of the total paid-up capital of electric lighting companies operating in London, low-pressure direct current systems contributing the other 8.4 per cent.

Professor Forbes, in answer to a question inviting any suggestions bearing on the present discussion in the United States, gives vent to the following: "I have been in the United States this year, and have seen the condition in which New York City is at present. This would all have been prevented if the electric lighting companies had looked to permanent rather than temporary profits: if the Board of Electrical Control had been composed of able and unbiased electrical engineers; or if the civic authorities had not lost their heads. It has been a foolish thing to insist on putting the wires all underground if the public have a right to expect the most for their money."

It is perhaps unnecessary for us to point out to our readers that the above remarks only express in other words sentiments which have been repeatedly insisted upon in the columns of THE INDIA RUBBER WORLD.

Helps for Workers in Rubber.

IT was an exceedingly pleasant and profitable hour that a representative of the INDIA RUBBER WORLD spent recently at No. 385 Broadway, New York, where the Singer Manufacturing Co. have opened for the exhibition, in a practical way, of their many machines and devices for manufacturers' use. They cover a wide range in manufacturing and among the great variety of processes displayed, those especially appertaining to the various forms of rubber work occupy a prominent place. The special difficulties in sewing rubber fabrics, with which every manufacturer is familiar appear to have been entirely overcome, the company's wide experience and careful study of the requirements of the trade having enabled them to supply the special appliances that are now so successfully shown in their machines. Included among these we noted their rapid and effective single thread, and their improved lock-stitch machine fitted for stitching and binding all grades of rubber cloth from the delicate texture used for dress shields, through all weight of Gossamer and Mackintosh material to the heaviest grade of rubber clothing material. Even the binding of matting and carpet "runners" with heavy corrugated rubber edges, and the sewing of rubber weather strips being successfully accomplished.

Perhaps one of the most striking machines in the exhibit is the powerful belting machine, used in stitching heavy rubber and canvas belts, that easily sews through material of an inch or more in thickness. Besides the devices for sewing ordinary seams and for binding alluded to, the line of special machines such as the button holers for making either the tailor or the straight button holes, the button sewing machine, the tacker for fastening pockets and seams, and the eyelet working machine are all of decided interest. Our readers are advised to visit these rooms, where they will be sure of a cordial reception and where they can hardly fail to be both instructed and entertained.

FROM the Albany, N. Y. *Evening Journal:* "The INDIA RUBBER WORLD AND ELECTRICAL TRADES REVIEW is published on the 15th day of each month in the Tribune Building, New York, at $2 per annum, and is an indispensable publication to all interested in the caoutchouc, gutta percha and allied industries."

THE India rubber of commerce is yielded by a tree very unlike the so-called rubber plant shown in Northern greenhouses. It is tall, with amooth white trunk, often somewhat crooked, and branching at the top into a thick cluster of small gnarled limbs, scantily covered with lustreless green foliage.

A DIRECTORY of Patent Solicitors, Lawyers, etc., edited and issued by E. de V. Vermont, the publisher of the *Journal of Useful Inventions*, at No. 744 Broadway, New York, has appeared. This volume of 260 pp. ($1 postpaid), besides being a carefully compiled publication of the names and addresses of all the men in the legal and other professions and trades connected in any way with inventions, throughout the United States and Canada, is full of useful information, The publisher's purpose is to issue and revise it every three months. Special attention is to be paid to recent decisions in patent matters. For $1 one receives *four* successive quarterly issues.

Current Gleanings.

BY LIGHTNING ARRESTER.

THE somewhat irregular ranks of strictly electrical journalism have been very substantially reinforced by the appearance of the *Electrical Engineer* as a weekly instead of a monthly, as heretofore, under the joint editorship of Messrs. T. C. Martin and Joseph Wetzler. These gentlemen have long been known to the electrical profession through their connection with the *Electrical World*, and it is not too much to say that they, by dint of perseverance and the high standard that they have set themselves in all their work, have made that journal what it is to-day, or rather what it was a few weeks ago. The *Electrical Engineer* has always been the most scientific of the electrical journals, in fact it is just the paper that electricians take pleasure and profit in reading and preserving. The change from a monthly to a weekly has been welcomed and applauded by all its old readers and by many new ones, doubtless all the more so because that change has inaugurated the reign of Messrs. Martin and Wetzler in the editorial sanctum.

* * *

The difficulties met with in the use of underground mains for the distribution of current from Mr. Ferranti's mammoth central station at Deptford, London, have aroused much comment across the water. I have made mention of the Deptford station in previous "Gleanings," so that the reader will probably remember that the dynamos there are designed to work at the hitherto unapproached pressure 10,000 volts, the current to be brought down to the working pressure by successive transformations. It is intended to carry the current at the full pressure of 10,000 volts for a distance of some ten miles, but this part of the scheme so far has not been a success, the mains at present laid down not being capable of withstanding the strain. The station is actually working, but the dynamos are only running at a pressure of 2500 volts, one-quarter of that for which they are built.

* * *

In his report to the stockholders the president of the company stated that the failure of the mains was due to bad work on the part of the contractors, and hinted darkly at legal proceedings to be taken with a view to clearing up the difficulty and obtaining compensation. The mains are of Mr. Ferranti's own design, consisting of two copper tubes, the space between the two being filled with insulating material (authorities differ as to the exact composition of the insulation, but no rubber is used) applied under heavy pressure. It is reported that the manufacture of new mains is being rapidly pushed forward at the company's own works and Mr. Ferranti expresses the utmost confidence in the ultimate success of his system. The progress of affairs at Deptford will be watched with interest in this country both by believers in the alternating current system and by manufacturers of insulated wires.

* * *

A test was made recently on a length of the new mains, consisting of some forty sections, extending round the Deptford station. By means of transformers the mains were subjected to a pressure of 18,900 volts without failure. Another interesting experiment was performed at the instance of the Board of Trade, which far-seeing body had put forward an objection that in case of a workman cutting the wire the act might be dangerous to life. This was denied by the engineers, and the experiment was carried out to prove the correctness of their contention. A length of the concentric main was charged with the 10,000 volt current, and the main was then cut through with a hammer and a smith's set. This was done in front of the deputation from the Board of Trade without the slightest effect upon the workman who held the tools. I would not very much have liked to be the workman all the same. Ten thousand volts, even in concentric conductors, inspire respect.

* * *

M. Charles Jacquin, the eminent French electrician, does not believe in concentric cables. In the course of a long article contributed to *La Lumière Electrique* on "High Tension Alternating Current Circuits," a long abstract from which was recently printed in the *Electrical Review*, M. Jacquin deprecates the use of concentric cables which have been quite extensively employed in continental Europe. The Siemens type of concentric cable has for an insulating medium between the two conductors and above the outer one, jute saturated with resinous compound. The outside serving of jute is covered with a lead pipe to exclude moisture and armored with iron wires, so that the cable is excellent, mechanically considered, and can be laid down in a trench without need of a special conduit. The low specific resistance of jute, however, and its capacity for absorbing moisture, render it untrustworthy, in M. Jacquin's opinion, as an insulating material for cables intended for high tension systems of distribution. This defect is naturally magnified in a concentric cable, as the difference of tension between the two conductors is twice that which exists between the conductor of a simple cable and the earth.

* * *

M. Jacquin cites various instances in France where jute cables have altogether failed, or considerably diminished in insulation resistance, after comparatively short periods of service. Having made out a strong case against jute, which material, in the opinion of many, has only economy to recommend it, he speaks very strongly in favor of India rubber. "India rubber," says M. Jacquin, "possesses very high insulating qualities, and when it is pure this material scarcely changes at all." Concentric cables insulated with rubber do not find favor with M. Jacquin on account of their great cost, this being nearly twice that of two simple rubber insulated cables, but he strongly urges the use of the latter, as he considers that no other type of cable is capable of affording a sufficiently high and constant insulation for high-tension alternating current circuits.

* * *

Apart from the greatly increased expense to which telephone companies are put in transferring their systems from overhead to underground, a very serious difficulty is presented in the reduced efficiency for telephonic purposes of underground wires compared with overhead conductors. This arises from the high inductive capacity of all insulating substances compared with dry air, which is at once the best insulator and has the lowest inductive capacity. Consequently there are always experimenters at work devising means to reduce the inductive capacity of underground cables, thereby increasing their efficiency in transmitting speech. Mr. John A. Barrett, of Brooklyn, N. Y., has recently made a step in the right direction by constructing a cable in which air is retained, to a certain extent, as the insulating medium. The conductor is wound with a hard cord in spiral fashion, and over this is laid a wrapping of paper. A number of conductors are cabled together in the usual manner, drawn into a lead tube, and the insulating compound is forced in. The compound does not penetrate the paper wrapping, so that each conductor is always surrounded by a layer of air. Mr. Barrett's cable may be somewhat bulky, but the idea is highly ingenious, and the desired result of reducing the inductive capacity, and consequently increasing the telephonic efficiency of the wires, is achieved to a considerable extent.

* * *

At the last meeting of the Board of Electrical Control of New

York City, the question of damage to the cables in the subways by steam heat came up and provoked an ebullition of Mayor Grant's high-tension, badly-insulated temper. Mr. Wheeler, the electrician to the board, submitted a report embodying data furnished by the experts of the various electric light companies who use the subways down-town as to the lowering of the insulation of the cables in use, owing to the extreme heat in the subways caused by leaks from the steam heating company's pipes. The Mayor's choler immediately broke down his insulation and he cut Mr. Wheeler short, refusing to hear any more of the report and ordering him to draw up a new one based on his own observations and not on those of others. Leaving Mayor Grant's unscientific—not to say unmannerly—conduct aside, it is a fact that the steam heat question, in the down-town district especially, is a serious difficulty which the users and manufacturers of underground cables have to contend with. At the meeting of the board, Broadway was the only street mentioned, but there is scarcely a street down-town the subsoil of which is not heated to a barbarous temperature by the continual pumping through it of steam from leaks in the pipes. The effect of this on the insulation and durability of the cables can be appreciated by any insulated wire manufacturer, and unless something is done soon to confine the steam to its legitimate channels the life of the cables in the steam-jacketed subways cannot be a very long one.

* * *

Talking of Mayor Grant's temper, it seems that it led him to make some impolite remarks anent Professor Morton's opinion as to matters of insulation. Professor Morton read the disparaging comments of the august President of the Board of Electrical Control, and wrote a letter to the morning newspapers expressing his surprise, "because I should have expected that professional courtesy among experts would have led his Honor to treat my opinion as to the insulation of wires with as much respect as I should have give to his opinion concerning the pulling of the same." The professor certainly had our worthy mayor there, but, judging from late developments, his Honor does not seem to be much of a success even as a wire-puller.

* * *

Mr. George B. Prescott, Jr., has recently been appointed general agent for Day's Kerite Insulated Wires and Cables. Mr. W. R. Brixey remains in charge of the Kerite factory at Seymour, Conn., where he has for many years superintended the manufacture of underground ærial and submarine cables of the sterling quality to which users of Kerite have been accustomed. Mr. Prescott is well-known to the electrical profession as a painstaking and highly scientific expert, and in his new venture, where he will probably have more to do with ledger and journal than with instruments and experiments, he carries with him the good wishes of his numerous professional friends and acquaintances.

* * *

New systems of insulating wires seem to be cropping up continually. I have already described one designed specially for telephone work. Now another inventor has come forward with a plan that certainly will not commend itself to telephone engineers, even if it is successful. This ingenious experimenter has a process for covering wires with spun glass. The manufacture of flexible glass is one of the lost arts, and if it should ever be rediscovered no doubt glass-insulated wires would come into use. For telephone work, however, they would not do. Glass has a very high inductive capacity and would bring down the talking far more than the present cables do. Curiously enough the first system of underground wires ever planned or thought of, that designed by Sir Francis Ronalds, of famous memory, was designed to have the conductors buried in glass tubes.

* * *

A new insulating compound has recently been invented and patented by Mr. A. A. Knudson. The materials used are carbolic acid and shellac. The combination is effected by heating carbolic acid to the boiling point, and adding the shellac, or other insulating substances, such as vegetable drying oils, asphalt or resin, may be employed. The product is a semi-plastic mass remarkably tough and tenacious, which is but little sensitive to changes of temperature and presents a firm, smooth surface. The results obtained with this new compound are said to have proved very encouraging.

* * *

Another and yet another, and the cry is still they come! Dr. Purcell Taylor, of London, England, claims to have discovered a new insulating material that costs only one-fortieth part of the price of gutta-percha, while its insulation resistance is higher. According to the doctor, the new material is very strong, can be made either flexible or hard and of any color, and any melting points may be given it. These claims are wide enough in all conscience, in fact so wide that one may be pardoned for being a little skeptical, especially as to that elastic melting point. If there is anything in it, I would like to be appointed agent for the new material; there ought to be a big business in insulated wires with raw material at two and a half cents per pound.

* * *

The Metropolitan Rubber Compaay, of New York, is making a speciality of rubber gloves for linemen. Linemen often run very considerable risks in handling live wires, the insulation of which may or may not be defective and electric light companies should make an inflexible rule that the men themselves be highly insulated when engaged in such work. The gloves in question are made from the very best grades of rubber, so as to be absolutely non-conducting, and are provided with double thicknesses in the parts which are most exposed to contact with wires and tools, so that with special material scientifically applied, they possess unusual flexibility and are not cumbrous to wear or work in. The gloves are cheap and are used by many of the principal companies; in fact, with such a simple safeguard attainable at small outlay there is no excuse for any company allowing employees to jeopardize their lives by handling the wires with the gloves off.

Rubber Monopoly in Liberia.

ONE Ellis Parr, a professional "promoter," together with the Liberian Consuls at London and Sheffield, and several other Englishmen as a board of directors, have issued a prospectus and are soliciting subscriptions to the stock of "The Liberian Government Concessions and Exploration Company, Limited." The company, it is stated, "has been formed for the purpose of purchasing the valuable India rubber concession granted by the government of the Republic of Liberia, West coast of Africa, for the sole right of collecting the India rubber grown on all the government lands and forests, and the sole right of exporting all the India rubber grown within the territories of the Republic of Liberia." Other concessions are also under negotiation, notably one for "the sole and exclusive right to establish a State bank, with the privilege of issuing a paper currency."

It happens that a treaty between the United States and Liberia, proclaimed in 1863, provides that citizens of this country in Liberia "shall be allowed to buy from and to sell to whom they like, without being restrained or prejudiced by any monopoly, contract or exclusive privilege of sale or purchase whatever;

and they shall moreover enjoy all other rights and privileges which are or may be granted to any other foreigners, subjects or citizens of the most favored nation." And, "all articles, the produce of the Republic of Liberia, may be exported therefrom by citizens of the United States and United States vessels on as favorable terms as by the citizens and vessels of any other foreign power." If, therefore, any advantages are to result from the government concessions above referred to, they should be enjoyed as fully by Americans as by Englishmen.

A Good Word for African Rubber.

NEW YORK, April 20, 1890.

EDITOR INDIA RUBBER WORLD:

I saw your note respecting what H. M. Stanley says about rubber in Africa. I quite agree with him. Fourteen years ago I went three times to the West coast of Africa to try and work the native rubber into better shape than at present exported. I should have succeeded but for lack of capital, and it is my positive belief that if a few natives were taken from South America into the Aruwhimi forests, and the African rubber gathered and treated in the same manner as Para, then washed and masticated and shipped here in large square blocks perfectly pure, and ready for putting on the grinders, a great saving could be made, the quality improved and price increased by a great margin. Boys can be hired on the coast for twenty-five cents per day, natural heat will do all the drying and maturing, and, as you are aware, washed rubber will mature twenty times quicker than raw. I think there is a fair field for some speculating merchant.

ROBERT D. KAY.

African Rubber Hard to Reach.

THE declaration credited to the explorer Stanley that the Aruwhimi forests in the Upper Congo country are destined to become "the rubber reservoir of the universe" is not agreed to by rubber importers in this country. Some statements of interest on this subject have been made by William P. Earle, of Earle Brothers, No. 138 Pearl Street, New York City, who are said to import 80 per cent. of all the rubber that comes to this country. Mr. Earle said, when questioned about Stanley's statement, that it had been known for years that rubber trees and rubber vines flourished in great quantities throughout the torrid zone. It was not startling, therefore, to hear that there was a big supply in Africa. There was a big supply everywhere—an inexhaustible supply. Its conveyance to a market was governed only by the facility with which it could be gathered.

"Rubber forests that have never been traversed," Mr. Earle said, "stretch back from the Amazon River. The African rubber, however, is of a different grade from that which comes from the Amazon. It is, in fact, the lowest grade of rubber. At present its price is about 40 cents, while Amazon rubber is worth about 85 cents a pound. An American would have no show in Africa any way. The supplies on the Congo River are almost entirely in the hands of the Germans. They have enormous warehouses there and their own lines of steamers. They barter various articles with the natives for their rubber. If an American were to go there with money they would simply have no use for him. But, as it is, about two-thirds of this rubber comes to the American market. Americans can buy it cheaper from the Germans than in any other way.

"Rubber," went on Mr. Earle, "is about the only commodity the market price of which is governed by the humor of the producer. The demand for it nearly always exceeds the supply. It does now, and that is why the price is so high. The trouble is that no white man can live in the climate of the rubber-tree district. The natives there are but a degree removed from monkeys, and they die by the thousands. The announcement of the discovery of a new supply, therefore, is unimportant. It isn't a question of the supply; it is a question of getting at it."

Rubber Wit is Cheap.

STANLEY'S report of unexplored and limitless rubber forests in Africa has aroused the sportive tendencies of some of the people interested in the rubber trade, as these clippings from the *Shoe and Leather Reporter* will indicate:

"Dealers think that Stanley hasn't gutta perchasable claim to the rubber forests in Central Africa he describes, because they are so difficult to get at. Parties in Boston who are interested in the gum may be expected to Converse on the subject.

"What boots it? If the gum of the Central African forests is so difficult of access as to be under the Ban-igan, how under 'Evans is it to be made available? To be sure we Con-go to Para and the Amazon still. They Candee-liver a goodly supply if they shoes, and the manufacturers will have to rubber long as best they can without it, although this is not a Good-year."

The Rubber Shoe Meeting.

THE meeting of the Rubber Boot and Shoe Manufacturers' Association at the Algonquin Club, Boston, April 16th, was attended by Hon. E. S. Converse and Costello C. Converse, of the Boston Rubber Shoe Company; S. P. Holt and John C. Balderston, of the National India Rubber Company; A. L. Coolidge, of the Para Rubber Company; R. D. Evans, of the American Rubber Company; J. Howard Ford and James B. Ford, of the Meyer Rubber Company; J. D. Vermuele, of the Goodyear Glove Company, and S. N. Williams, of the Lycoming Rubber Company. No business of general importance was transacted, and most of the time was occupied in discussing the question of freights. After an enjoyable dinner the meeting was adjourned to New York on the 14th of May. This being the date for going to press in the INDIA RUBBER WORLD office there is not time for a further notice of the meeting in this city.

Rubber Thread Goods Go Up.

THE manufacturers of rubber thread goods—suspenders, elastic ribbons, etc., have decided to raise their prices 35 per cent. on account of the advance in crude rubber. Mr. E. Thomas Sawyer of the Easthampton, Mass., Rubber Thread Company, while in New York a few days ago, said that as rubber thread factories use nothing but pure Para rubber, they had no choice but to advance the prices of their product in proportion to the advance in crude material.

WE beg to acknowledge the receipt of a pamphlet programme of the exercises at the general meeting of the American Institute of Electrical Engineers, to be held at the Massachusetts Institute of Technology, Boston, Wednesday, May 21st. Gen. Francis A. Walker, LL.D., will deliver an address of welcome. Papers on electrical topics will be read by Wilfrid H. Fleming and H. F. Parshall, both of New York City; Dr. Edward L. Nichols of Ithaca, N. Y., and Oscar T. Crosby of New York City. The afternoon session will consist of papers by Thomas D. Lockwood of Boston, Louis B. Marks of Cornell University, and Hermann Lemp, Jr., of Lynn, Mass.

Trade Notes.

THE Woonsocket Rubber Co. have re-elected Joseph Banigan president and Frederick Cook treasurer. Walter S. Ballou was elected secretary of the Board of Directors to fill the vacancy caused by the death of Henry Ballou, who had been secretary since the organization of the company in 1876. The question of increasing the capital stock from $1,200,000 to $2,000,000 was discussed, and Messrs. Banigan and Cook were appointed a committee to procure the necessary legislation for the increase. It is expected that the new mill at Woonsocket will start about August 1st.

—Mr. W. W. Harral, who was travelling until recently in Ohio in the interest of the Fairfield Rubber Company, of Fairfield, Conn., has come to New York to take charge of that company's office, No. 95 West Broadway, at the corner of Franklin Street.

—An ingenious stopper has lately been patented for use in bottles containing poison. The stopper is made of India rubber, and is surmounted by a perforated ball of India rubber, brightly colored so us to render it distinctive in the light, and containing a bell which rattles when the bottle is moved, thus drawing attention to the character of the contents, even though it be impossible to see the label.

—The Post Office Department has advertised for proposals to furnish all forms of stationery needed in the department and in the various post-offices, at such times as they may be ordered during the fiscal year beginning July 1, 1890. The specifications include "rubber stamps," "rubber goods" and "rubber erasers." Particulars may be obtained by addressing the Department.

—Ivory nuts have failed to hold their own against rubber products as a material for buttons. New York continues the second largest market for these peculiar South American nuts, but the importations have declined more than half in ten years. One importer, who supplied fifty-one manufacturers in 1879 says that he sold to only fifteen last year. The usefulness of the "ivory" is greatly restricted by the small size of the nut. Experiments have long been unsuccessfully tried to make the "ivory" into blocks of any size by reducing the nuts to powder and then moulding the mass together by powerful pressure. If any one could succeed in inventing means to do this, it is safe to say a fortune would await him, for the supply of ivory nuts is vast.

—There may something to interest rubber men in the annual bidding on supplies for the Signal Office, War Department, at Washington, which closes this month. Particulars are furnished by A. W. Greely, chief signal officer.

—Melville Lindsay, of Brooklyn, has been awarded the contract for diving suits for the United States steamship *Baltimore*, the price being $481.50. Other bidders were A. Schrader & Son, New York, $482; R. A. Robbins, New York, $521.80; Tissot & Schultz, New York, $533.41; and S. C. Forsaith Machine Co., Manchester, N. H., $509.

The Treasury Department has affirmed the decision of the Collector at the port of New York, assessing imported rubber balloons as toys, dutiable at 35 per cent. ad valorem.

—Mr. Barnes, formerly Superintendent of the Cleveland Rubber Co., and later of the Gutta Percha and Rubber Manufacturing Co. of Toronto, is at present the secretary of a flourishing corporation in Akron, Ohio. It is not in the line of rubber manufacture, however, but is known as the Akron Heating and Ventilating Co., and is a most prosperous concern.

—The Frictional Belt, made by the Tyer Rubber Co. of Boston, is likely to have quite a boom, for it has become popular in base-ball circles. Just how it started is not known, but both the Brotherhood and League players found out that it was an elegant remedy for a lame back or for a strain, and they therefore buy them, and one tells another of their virtues.

—A very neat trade mark, and one that will appear on some excellent goods, is the new registered design of the Ideal Rubber Co. of New York. It is a representation of the Western hemisphere with the Para region brought into special prominence. The name of the company is then so lettered as to embrace both North and South America.

—Far up in northern Maine, where the wolves howl by night and the black bear roams his native wilds, is a little cottage situated upon the shore of a lake known as Moosehead. It is to this resort that a party of gentlemen from Boston and New York go the 22d of each May to catch the fish that abound, and to enjoy ten days of genuine backwoods life. Of this year's party is one whom all rubber men know—Mr. Darling, of the Boston Woven Hose Co.

—Mr. Williamson, for many years a traveller for the Trenton Rubber Co. and the Empire Rubber Co., has left them and become connected with Brooks, Oliphant& Co. of Trenton, N. J.

—Mr. G. H. Appleton, the former manager of sales for the Tyer Rubber Co., has gone abroad for a pleasure trip of six or eight weeks. Although Mr. Appleton has retired from active participation in the rubber business, it is safe to predict that the elastic industries across the water will interest him. In fact, we believe he has invitations by letter to visit some mills and proposes to accept them.

—It sometimes causes surprise when a tiny vacuum tipped arrow is shot against the wall and there hangs. An exaggerated illustration of this same principle may be observed in the case of the widely advertised "Human Fly." Here a young lady shod with vacuum shoes of rubber walks head downward on the ceiling of some theatre, while the onlookers hold their breath in wonder. It's all simple enough, but it's remarkable, just the same.

—The American Rubber Company has declared an annual dividend of 6 per cent. upon a capital stock of $1,000,000.

—We regret to announce that Mr. Hiram Dunbar, of the Boston Car Spring Co., is laid up with a broken leg. Mr. D. slipped and fell while crossing a portion of a sidewalk that was strewn with pieces of small coal. To the surprise of the physician and the delight of his friends, Mr. Dunbar is recovering as rapidly as a young man, and is full of courage, expecting soon to be down to the factory again.

—It is with extreme regret that we chronicle the fact that genial Treasurer Voorhies of the New Jersey Car Spring and Rubber Co., of Jersey City, is suffering from a fracture of the leg. He is, however, convalescing rapidly and will be at his usual post shortly. His accident has not materially interrupted his business habits, and his letters "dictated to the phonograph" are just as breezy and cheerful as ever.

—Mr. Morganstern, the popular junior member of the firm of Lowenthal & Morganstern, sailed May 10th for Europe. Mr. Morganstern, always a hard worker, has of late been overdoing and wisely takes a needed rest. He plans to be gone about six weeks, and we trust that he will return with all of his old-time vigor.

—A neat plant, and one capable of turning out considerable work, is that of the Rubber Valve and Spring Co. of Trenton,

N. J. The calender, mills and presses are all new, and the main building is a substantial brick edifice. It is the plan of Manager Gooch to erect very soon an additional building for the making up of heavier mechanical goods. At the present time their line is particularly fine valves, springs, packing, and a general line of mould work.

—The strike that occurred among the glass workers last fall is even now bearing fruit that is bitter to the taste in that it troubles the rubber manufacturers. All of the druggists' sundries men use quantities of glass bottles for atomizers and feeding bottles. Now, when they find the prices greatly advanced, and in many cases orders refused, it is far from pleasant, especially as many of them have their own orders waiting and at the old prices.

—A beautiful fancy in the way of an advertisement is one recently designed in the office of the Boston Rubber Shoe Co. It represents one of their yachting shoes afloat upon a summer sea, with a mast set into the instep; sloop rigged and evidently fit for use on the briny deep. About the picture of the yacht and the sea encircles a rope which is tied in a true nautical knot. Mere words do not convey a worthy impression of the exquisite beauty of this picture. One must see it, and perhaps wear the ventilating yacht shoe in order to appreciate to the full good taste of the picture.

—In speaking of football, it is interesting to recall the time when they were first imported from England and cost $4 each, and were heavy moulded articles that required a substantial and calloused toe to kick. David Hill, so well known as an old Boston manufacturer, was the first one in this country to make them, and, Yankee-like, he made them in his own way, and produced nearly as perfect a ball as is made to-day. In those days, as he remarks, retrospectively, there was money in the business and little competition. To-day the business of course is run on a much closer basis. At the same time, although the boys do a good deal of kicking over his work, he isn't given to kicking be prices high or low.

—Street railway cars that are run by electricity, and run as rapidly as they are in many cities, need some sort of fender to prevent serious accidents. A new one that the *Street Railway Journal* illustrates, is a sort of cow-catcher, on the slope of which is a heavy four-ply rubber belt, pliable enough to pass over paving-stones and similar objects, but rigid enough also to prevent an arm or leg from being drawn under the fender. It is possible that the arrangement is not quite perfect in some of its minor details, but it looks all right in principle, and the probability is that by this or some similar attachment many lives may be saved.

—Philadelphia is probably making as many experiments in the line of noiseless pavements as any city in the United States. At the present time there is among the faculty and students at the high school on Broad Street an agitation to have asphaltum or vulcanite or some other noiseless pavement laid in front of their school building that the noise may be lessened instead of the lessons being lessened, as they are at the present time. We would suggest that the City of Brotherly Love try a rubber pavement. We have already mentioned in our columns how successful this has been in cities abroad, and there is no reason why some progressive American city should not at least try it.

—It is said that there are now in the United States about 7000 phonographs in use. It is predicted that by January 1, 1891, there will be no less than 25,000 in use. The machine, far from being delicate or intricate, is said to be so well made that with care and slight repairs it will last fifteen years.

—We have before us a trade price list which bears every impress of being thoroughly English. It was given us by Mr. Austin, the New York salesman for the Commonwealth Rubber Co., and was issued by him when he was with the firm of Craxford and Austin of London. The manner in which the prices of rubber and canvas hose of many kinds and of vulcanized sheet washers, valves, buffers, etc., are tabulated is extremely simple and worthy of imitation. We would advise some of our American manufacturers, who are about getting up catalogues, to look up the English manner of preparing them, and possibly they might get a hint which would save work and cost in printing.

—The business of the Davol Rubber Co., in Providence, is increasing so rapidly that their large and complete plant even now is not enough for them, and within a few months they contemplate erecting another substantial addition.

—We are very glad to acknowledge the reception of several complimentary tickets to what is called The Parlor and Lawn Game at West Brighton, Coney Island, near "The Elephant." These tickets, as we understand it, are to be distributed on the Coney Island boats this summer, and will be an introduction to a beautiful pavilion that will be there for showing the goods of the Rubber Tipped Arrow Co. of Boston. Their popular toy pistols will be there exhibited, and any one presenting a card will be entitled to six shots with the Vacuum Tipped Arrow. This no doubt will be one of the popular amusements at Coney Island, and will serve to further advertise this pushing concern who are pleasing so many people by selling this perfect toy.

—Twenty-three hours a day is what the Johns-Pratt Co. have been running in order to fill the orders on their popular packing and asbestos rubber articles, and still they could not catch up. They are, therefore, putting up a new building which will be two stories in height, 225x40 feet in dimensions. They hope when moved into this to be able to largely increase their output.

—We regret to chronicle the fact that A. C. Cattelle, the enterprising Cincinnati rubber manufacturer, in driving from his home in Norwood, was thrown from his carriage and dislocated his right shoulder. He is now in a fair way to recovery, and by the time he reads this note will probably be about his business again.

—A coast of fifteen miles on a safety bicycle, with the brake tied down, and every nerve strained to its utmost to keep a bright lookout and not run over any clumsy peasant, was what Frank Whitehead, Superintendent of the Hamilton Rubber Co., enjoyed during his recent trip to Europe. His coast was down one of the fine roadways of the Alps, and the experience, although an exciting one, was most enjoyable.

—The Deverall Perfection Manufacturing Co., of No. 1 Adams Street, Brooklyn, have a plant sprinkler that is not only extremely popular in the winter time for conservatory use, but is also sold quite largely right through the summer. The particular excellence in this sprinkler is the curved neck which enables one to deluge the underside of the leaves of plants, and thus destroy the parasites that so often injure the foliage.

—The wire men are talking about a $250,000 contract which was made by John A. Roebling Sons & Co., of Trenton, N. J., in Minneapolis recently. Mr. F. A. C. Perrine, the superintendent of the cable department, was the fortunate gentleman who went out and secured the contract.

—What was formerly known as the Delaware Rubber Co., of Titusville, N. J., has now blossomed out under the name of the

Raymond Rubber Co. They have added another grinder to their plant, and are said to be turning out a good grade of rubber shoddy.

—A new line of goods in many rubber stores, and one that ought to sell pretty well, is that of table oil cloths. Several of the older manufacturers in rubber have carried these goods for a long time, but it is only recently that the rubber stores generally have begun to carry a certain amount of this stock,

—The initial game of the season of the Boston Woven Hose nine was played with the Boston Brotherhood nine. It is no disgrace to the former club that they were beaten, as the Boston Brotherhoods are perhaps the strongest nine in the country. At the same time the Woven Hose boys made a gallant fight and many of their brilliant plays were most enthusiastically applauded.

—Certain of the large rubber factories are finding it quite profitable to buy pig lead and furnish it to litharge manufacturers and then re-purchase it in the shape of litharge, that is, they did find it profitable before the present war came on between the litharge manufacturers. To-day it is cheaper to buy litharge than it is to manufacture it.

—Frank A. Magowan, of Trenton, has recently been elected president of the Trenton Watch Co. This makes the fifth manufacturing plant in Trenton of which Mr. Magowan is the head. His executive capacity seems to be almost limitless.

—The Home Rubber Co., of Trenton, N. J., are contemplating quite an extension to their plant, as they find it impossible, running overtime, to fill their orders.

—An exceeding beautiful spot on Roxbury heights, overlooking the city of Boston, is known as "The Maples," and is the home of C, M. Clapp, proprietor of the Ætna Rubber Works. As Mr. Clapp, although convalescing from his recent illness, is still confined to his room, except on the most pleasant afternoons, his study at "The Maples" has been more or less visited by rubber men from all over the country. One and all express themselves surprised to see Mr. Clapp looking so well, and join in the sincere wish that it will not be long before he resumes his old place at his Boston store.

—The list of machines and articles for use in the manufacture of druggists sundries, that were put up at auction at the Brooklyn Rubber Works last month, was long and varied. The rubber manufacturers from New York and New England were very well represented, and the goods sold without any particular trouble. The prices, as a rule, were quite low, but it is well known that second-hand rubber machinery never brings high prices. Mr. C. B. Dickinson, the former proprietor, is again manufacturing some of his specialties in a small way in Brooklyn, and is having a very good sale on them.

—A buttonhole machine that seems to be more or less popular in New England is that manufactured by John W. Lufkin, of Boston. Like all other machines for making buttonholes, it is more successful on cloth that has no rubber with it than it is on rubber cloth—at the same time, with the proper treatment, it is successfully used in many rubber factories.

—Commonwealth Avenue, the finest residence street in the United States, has lately trespassed upon ground that has historic interest to the rubber trade. The old buildings of the Boston Drug Co. were at the lower end of this avenue, and it was in those buildings that the Pierce Rubber Mills were first started, and the first rubber shoddy was made in a commercial way. This was long years ago, but the Pierce Bros. have still continued in the business and are to-day probably making as good recovered rubber as any one of the numerous houses that are engaged in this industry.

—The late Mr. B. F. Sturtevant was one who perhaps gave more attention to the ventilation of rubber mills and to the drying of rubber than any other one man in his line of business. How successful he was is well known throughout the rubber trade. We purpose, in the near future, to have some articles on the ventilation of rubber mills from the pen of one who was intimately associated with Mr. Sturtevant in the development of his blowers and fans, which we are sure will be read with exceeding interest and with a great deal of profit by every rubber manufacturer in the country.

—Mr. Sanford, of the Lycoming Rubber Co., took a flying trip through the East, just missed the editor of the INDIA RUBBER WORLD in Boston, and started off for Chicago on one of the most rapid trains. When the rubber business men get started on a trip things have to move, and while we were sorry not to see Mr. Sanford, we realize that with the growth of the business of the Lycoming Rubber Co. time is precious, and much must be done in a short time. So prosperous has this company been in the past that they have found it hard work to fill orders. They are therefore about to double their capital, making the capital invested in their place $500,000. Under this new regime the first-class goods turned out by this company will no doubt be distributed far more widely, and obtain even a firmer hold on the market than they have in the past.

—Walker, Burt & Co. is the name of a firm of young men who were formerly interested as salesmen for rubber manufacturers. They now call themselves manufacturers' agents, are located at No. 224 Tremont Street, Boston, and are selling goods on commission throughout New England.

—What was formerly the Acme Rubber Works, at No. 43 Centre Street, Boston, is now the Acme Rubber Co., with a bright looking young man as manager, whose name is L. B. Trusslow. The goods manufactured are designated as hard and soft rubber goods, with a specialty of fine mould work. It is also said that the company are making a line of stamp rubber.

—It is perhaps not generally known that a deal of starch is used by rubber manufacturers, more particularly those who make clothing and boots and shoes. The S. W. Pearce Co. of Providence, have the reputation of making that which is best suited for the rubber trade. The need in goods of this kind is thorough dryness. The S. W. Pearce product averages ninety-five per cent. starch and less than five per cent. moisture, which is as dry as farinaceous matter of this kind can be made. The fact that their goods are pure and exceedingly fine has given them the bulk of the trade in this material.

—The Millard Manufacturing Co. of Providence, continue to prosper, orders for their specialties, atomizers and syringes, coming in more and more. Mr. Millard's policy has always been to make the very best goods that he could, and he has some specialties that are extremely popular.

—With the advent of the spring, the Western druggists and druggists sundry men are enjoying a call from Mr. J. Fred. Doty of the Atlas Rubber Co. of New York. Mr. Doty has hosts of friends all over the country, and is doing a rattling good business.

—The two large factories of the Boston Rubber Shoe Co., after being closed for two weeks for the annual repairs, resumed operations May 5th. In spite of the mild winter the past year was an exceptionally good one with this company. It is expected that they will run until next spring without again stopping.

—A. L. Coolidge, president of the Para Rubber Shoe Co., will spend the summer at Swampscott with his family.

—There is every indication that the works of the National India Rubber Co., at Bristol, R. I., will continue in operation during the summer. They were the first to get out samples of tennis shoes this year, and they report an unprecedented run of orders.

—E. Bruce Preston, selling agent in Chicago of the New Jersey Rubber Shoe Co., has returned from a four weeks' trip to the Pacific Coast.

—E. S. Converse, of the Boston Rubber Shoe Co., has granted the Malden Young Men's Christian Association the use of his park at the Falls for an athletic ground the coming season.

—A New England maker of rubber goods advertised in *Scribner's Magazine*, "The best woven hose; a sample free upon application." He received promptly a deluge of postals from ladies all over the country asking for a sample pair, and involved himself in expense to explain that he only supplied the garden variety.

—The Metropolitan Rubber Co., which has been carrying on its work in mills owned by the Wilson Sewing Machine Co., at Wallingford, Conn., has recently purchased the entire plant, which assures the people of Wallingford of the permanent location of the rubber works there. Considerable new machinery has been added, and it has been decided that the works will have to be enlarged.

—It is said that Euphorbia rubber, which until recently has been employed only to a very limited extent, is now ascertained to possess certain qualities of special value in plumbing and steam-fitting.

—The annual meeting of the stockholders of the Wales-Goodyear Co., will be held May 21st at Naugatuck, Conn. George A. Lewis, of that company, has returned from a trip to Aiken, S. C., much improved by his vacation.

—The New York headquarters of the Woonsocket Rubber Co. have been changed from No. 72 to No. 76 Reade Street. The office is in charge of W. A. Eldridge, and the new location furnishes better accommodations than the old.

—The Lycoming Rubber Co., at Williamsport, Pa., which has been a partnership concern with limited liability under the laws of Pennsylvania, is to be reorganized as a regularly incorporated company, with an increase of capital from $200,000 to $300,000.

—The American Rubber Store, No. 65 Charlotte Street, St. John, New Brunswick, is the only exclusive rubber store in the Lower Provinces. Their specialties are rubber clothing of every description, rubber boots and shoes and all kinds of rubber sundries. They are manufacturers' selling agents for several rubber companies and are in a position to introduce any new novelty in the rubber line to the best advantage. A large rubber tree in their show window attracts much attention from passers by.

—The National India Rubber Co. since the 1st of Januray have doubled their capital, the new issue being promptly subscribed for, and they are now one of the strongest concerns manufacturing rubber goods. Besides boots and shoes they make extended lines of Clothing, Mackintoshes, Belting, Packing, Hose, Carriage Drill, White Sheeting and Druggists' articles. They claim the largest single plant, and the greatest variety of products of any establishment in the country.

—The New York Belting and Packing Co. have on exhibition in the windows of their warerooms, No. 15 Park Row, New York City, the immense vulcanized rubber main-driving belt, weighing 4800 pounds, which they have made for the new elevator "A" of the New York Central & Hudson River Railroad Co. It is of mammoth proportions and measures 350 feet in length, 52 inches in width, and is 8-ply thick.

—The Brook Haven Rubber Shoe Co. at Setauket, L. I., will resume work for the season on Monday, May 19th, having stopped only for the purpose of taking their annual inventory and making repairs. They expect to employ about double the number of hands. They had been running for some three months on half time, with 200 on the pay roll.

—The editor of the INDIA RUBBER WORLD acknowledges a pleasant call from Mr. A. P. Cochrane, the manager of the Revere Rubber Co. of Pittsburgh, Pa.

—A new rubber article, for which the inventor claims much, is something to aid a base-ball pitcher in getting the "curve." It consists of a flat strip of rubber with a ring at one end and a flat corrugation at the other. The ring is slipped over the middle finger and the corrugation rests against the ball. It is claimed that when the ball is pitched the rubber clings to it and sets it whirling, thus giving it more of a curve than the finger tips can.

—St. Louis jobbers are filling a large number of orders on the April discount rate. There is every prospect of a much better business this season than there was last year at this time.—*St. Louis Leather Gazette, April 24.*

—Harry Converse, of the Boston Rubber Shoe Co. is quite a horseman. He may frequently be seen in the suburbs of Malden driving six-in-hand.—*Shoe and Leather Facts.*

—E. S. Converse, treasurer and manager of the Boston Rubber Shoe Co., Mrs. Converse and their daughter, Kittie, will spend most of the summer in Europe. They expect to sail on the 21st.

—Mr. Joseph Banigan, of the Woonsocket Rubber Co., not only imports all the Para grades consumed by the Woonsocket Co., at its Millville and Woonsocket mills, but he has recently been an extensive seller of crude rubber. It is understood that Mr. Banigan has made a neat sum this spring out of the rise of this commodity. New York brokers report that several manufacturers have bought rubber this year in excess of their needs for factory uses.

—Mr. Charles L. Johnson, of the Candee Co., has made an excursion to Virginia, for pleasure, since the last issue of the INDIA RUBBER WORLD.

—The factory of the Wales-Goodyear Co. shut down during the last week in April for the annual stock taking.

—At the annual meeting of the stockholders of the Para Rubber Shoe Co., April 28th, the following named directors were elected: Samuel Johnson, Ezra Farnsworth, William O. Grover, Henry Mason, Oliver Ames, A. L. Coolidge, J. H. Stickney, William T. Hart and Thomas E. Proctor. Mr. A. L. Coolidge was re-elected president.

—Mr. F. H. Robinson, well known among rubber manufacturers as a popular young rubber broker, became on the first of May a member of the firm of DeLong, Betts & Co. of New York. Mr. Robinson is a hard worker and a successful one, and the fact of his connection with this substantial house will no doubt open up to him a still wider field among the purchasers of crude gums.

—Mr. B. L. Tomes, who until recently was in charge of the Cleveland Rubber Co's. Eastern branch, has become the "Co." in the firm of A. Van Vechten & Co., dealers in mechanical rubber goods and machinists' supplies, No. 165 Greenwich Street, New York. Mr. Tomes will be the manager in charge of the rubber goods department, and the new firm will continue the business here of representing the Cleveland Rubber Co. in the East.

—Mr. Frank Howlett, the well-known rubber dealer of Syracuse, and Rochester, New York, has leased spacious storerooms in the magnificent new Kirk Building, corner of West Fayette and South Salina Streets, Syracuse, N. Y., where he will henceforth dispense rubber goods for the Western New Yorkers. The Kirk Building is one of the most substantial and elegant fireproof buildings that architectural art has ever designed, and, although it has scarcely been completed it is already celebrated throughout all Western New York. Mr. Howlett has scored a ten strike in securing salesrooms in such a building.

—Mr. George B. Hodgman, the secretary of the Hodgman Rubber Company has sailed for Europe for a much needed rest. He has been at his desk continuously for more than two years past without an intermission in even the hottest summer weather, and it is now his intention to rehabilitate himself entirely in making a restful stay abroad. Most of his time will be spent in England and France, where he says he can get more civilization and comfort with rest and quiet in the bargain than anywhere else that he knows of in Europe.

—Mr. H. M. Lindblade, of Toronto, has been made superintendent of the clothing department of the Canadian Rubber Co. at Montreal.

—L. D. Apsley, president of the Rubber Manufacturers' Association and Wheeler Cable, president of the Cable Rubber Co., recently made a trip to Washington in the interests of the rubber clothing manufacturers, which is said to have been very successful. We congratulate these two gentlemen on, not only the foresight that they displayed, but the singular quickness with which they accomplished the object for which their journey was taken.

—It is said that stock is being taken to form a company for the manufacture of light rubber goods in Ayer, Mass.

—George H. Quincy, of the Candee Rubber Co., and John C. Balderston, of the National Rubber Co. have become members of the Boston Trade Club,

—Mr. B. F. Jaquith, so long prominent in the rubber trade, has sold the Boston business to his sons, Harry J. and Edwin P. Jaquith, who have formed a co-partnership under the firm name of the B. F. Jaquith Co., and will continue the business at No. 80 Lincoln Street. Mr. B. F. Jaquith has reserved and will continue the business at Des Moines, Ia.

—Mr. E. S. Converse, President of the Boston Rubber Shoe Co., is Treasurer of the Executive Committee in charge of the arrangements for entertaining the veterans of the Grand Army of the Republic at their encampment in Boston in August. He has also subscribed $1000 toward the entertainment fund,

—Rubber corsets are among the latest novelties mentioned in the fashion papers.

—The B. F. Goodrich Company, of New York, has opened salesrooms in Chicago, to be in charge of Mr. S. Y. l'Hommedieu, who, for several years past, has been resident agent here for the Star, Columbia and Boston Woven Hose Companies, in Reade Street.

—Mr. John C. Balderston, Vice-President of the National Rubber Co., has purchased a handsome residence, No. 473. Beacon Street, Boston.

—The Para Rubber Shoe Co., on April 21st, raised the pay of their operators at South Framingham to the old rate of wages. The hands worked in the dull season under a reduced price list, the company continuing operations principally because they wished to give them employment. The increase amounts to an average of about 12 per cent. in the different departments.

—The Gendron Iron Wheel Co., of Toledo, Ohio., make a speciality of goods for young people, including tricyles. A rubber tire that cannot be forced out of position makes an easy riding wheel and is one of their novelties.

—The Page Belting Company, of Concord, N. H., will open an office at No. 120 Liberty Street, New York, about May 1st. Mr George A. Pierce will be its manager.

—A name familiar to the manufacturers of hardware, in all parts of the Union, is the Celluloid Varnish Company. It will doubtless gratify their many friends to know that they have found so much business that they were obliged to secure more room. To do this they moved further up Chestnut Street, in Newark, and now have a factory twice as large as their first plant was.

—Many manufacturers will tell you that the country where there is cheap help and water-power is the place for a rubber mill. It is interesting, while they talk, to think of the prosperous Mattson Rubber Co., situated right in the busiest part of New York City, using a whole building, and running night and day to keep their orders filled.

—Something that all electric light, and indeed all linemen, should have, are the cutting pliers that are insulated by means of rubber shields on the handles. If all linemen had these instruments there would not be half as much danger in cutting dead wires, for their hands would be protected whether they wore the regulation rubber gloves or not.

—The Abendroth & Root Boiler Company have just put in two boilers in the new testing rooms of the Thomson-Houston Co., in Lynn, Mass., of 205 horse power each. They are to be run in connection with an Armington & Sims engine, and will carry 160 pounds of steam. At another plant in Lynn, that of the Belt Line Railroad, they have also put in two boilers of 127 horse power each, designed to carry the same pressure.

—Mr. George M. McGregor, of Dundee, Scotland, the manufacturer of the famous Rob Roy Hose, is now in New York on a flying visit.

Obituary.

THOMAS M. CRESSEY, who had been long connected with the Goodyear Metallic Rubber Shoe Co., in Boston, and had been for two years past their selling agent in New York, died at his residence here on the evening of April 13th, of Bright's disease. He was a man of many friends and was highly valued by the company with which he was connected. The interment was at Rowley, Mass., the home of his youth. He left a wife and two children.

THE long established firm of De Long, Betts & Co. brokers in India rubber, have removed, since our last issue, from No. 119 Pearl Street, New York, to new offices at No. 51 Stone Street and No. 19 South William Street.

BANK-MANAGER Crawford, who was recently captured at Santa Barbara, after having concealed himself from the detectives for two years, owes his detection to the fact that he forgot to conceal the rubber bands with which the money that he stole had been wrapped.

A CATALOGUE printed both in English and Spanish, elaborately illustrated, with let-in index for handy reference, is an unusual thing even in this day of perfect printing. Such a one has been issued by The Alford & Berkele Co., New York. The book is designed more especially for the Export Trade, and is in great demand by all the Export commission houses who make a specialty of Hardware for export.

The Rubber Market.

THE India rubber market developed a great deal of activity during the week or so following our April report. Rumors were current of the purchase of 2,000,000 tons of rubber within two days, at quotations then prevailing, by a few large manufacturers who were obliged to run their factories, regardless of price, the stocks of the whole world contributing to the sale. The names of these anxious buyers failed to come to the front, however, and there is reason to suspect that the amount of the sales during the latter part of April, though unquestionably large, were greatly overstated. There has been a great deal of changing of hands in rubber, under circumstances indicating that it is chiefly for speculative effect. It is not apparent that any manufacturers are piling up large stocks for consumption, especially as new crop rubber will be available toward the end of August. It is more probable that the market has been gradually getting within control of the speculative element. The present holders may safely count upon maintaining prices until the incoming of the new crop; what will then result will depend upon the length of the purses of the speculators. If they have money enough to control next season's product, consumers may as well prepare to accept a long-continued run of high prices. The uncertain element at all times is the actual amount of rubber in existence. It is possible, at no time, to estimate correctly the holdings of rubber in other than first hands. Whenever a speculative corner has collapsed in the past the chief element of surprise has been the sudden appearance upon the market of quantities of rubber, the existence of which had previously been unsuspected. The warehousing system of England is such that it is practically impossible there to conceal large amounts of rubber from the trade, but in America and elsewhere conditions are more favorable for speculators, and this class have been known, when making their base of operations in London, to ship their stocks, say to Lisbon, there to be held in reserve for future manipulations.

The market was easy during the early part of the present month, but during the past few days has become more active, and prices have advanced again.

Of course the first effect of the continued advance will be felt by the manufacturers. It is common talk among them that prices will have to be advanced again shortly, at least 5 per cent. Some of them feel that before the new crop is in the market the quotations for Para will reach $1 a pound.

The market at Para is quoted at 3200@3500 reis. Exchange is higher at 21¼d. This makes landed cost 89c for island and 91c for up river. There is nothing afloat for United States. The English market has advanced to 45d for new fine at which 10 tons were sold May 7, for June delivery. There were further buyers at this price but few sellers.

The statistical position of the market for Para rubber is illustrated in the following statement of receipts and deliveries and the stocks here at different periods:

Stock of Para here March, 31,	about	800,000 pounds.
Receipts of Para here in April,	about	1,864,000 pounds.
Deliveries of Para during April,	about	1,914,000 pounds.
Stock here April 30, 1890,	about	750,000 pounds.
Stock here April 30, 1889,	about	1,380,000 pounds.
Stock here April 30, 1888	about	2,800,000 pounds.

A comparison of the prices of Para rubber during the month of April, 1890, and for the same month in the two years preceding, is shown in this table:

	1890.		1889.		1888.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First	84	64	62	38½	77	53
Highest	87	66	65	39½	77	54
Lowest	83	63	61½	37½	75½	52
Last	87	66	65	39½	75½	52

Through a transposition of prices in the report of March 31, those given for 1888 should have been for 1890, and those for 1890 should have been for 1888.

The latest quotations in the New York market are:

Para, fine	90-92	Loando, Niggers	65
Para, coarse	67-68	Sierra Leone	54½-55
Caucho (Peruvian) strip	60	Benguela	59-60
Caucho (Peruvian) ball	65	Congo	53
Mangabeaira, sheet	53	Small Ball	50-52
Esmeralda, sausage	62-64	Soft Ball	43-44
Esmeralda, strip	58-59	Flake, Lump and Ord	40
Guayaquil, strip	45-55	Mozambique, spindles	
Panama, strip	58	Mozambique, red ball	54
Virgin Scrap	65-70	Mozambique, white ball	50
Carthagena, strip	37	Madagascar, pinky	73-74
Nicaragua, scrap	61-62	Madagascar, black	53-54
Nicaragua, sheet	59-60	Borneo	45-57
Mexican, scrap	58-60	Gutta percha, fine grade	1.50
Mexican, sheet	58	Gutta percha, medium	90-1.00
Guatemala, sheet	55-58	Gutta percha, hard white	95
Thimbles	52	Gutta percha, lower sorts	50
Tongues	48@49		

Messrs. Simpson & Beers, brokers in crude India rubber and commercial paper, of New York, say: "During the past month our market for rubber paper has been quite well supplied, and there has been a fair demand from out of town banks at from 6 to 7 per cent., mostly at 6½, and mostly four months to run. There has been a very limited demand from our home demands, mainly on account of the large offerings from their dealers. Should a silver bill be passed, as now appears probable, it will mean continuous inflation, resulting of course in a prolonged easy money market.

THE MARKET IN BOSTON.

The market is firm, with good inquiry and moderate transactions to regular trade. New fine Para has sold at 90c., while 89c. is asked to arrive. Coarse is very scarce at 68@69c. Receipts of Centrals and Africans go steadily at quotations.

The latest cash prices quoted are: Fine Para, new, 89@90c.; old, 92c.; Coarse, new, 68c.; Caucho, 62c.; Nicaragua scrap, 65c.; Nicaragua sheet, 63c.; Esmeralda, sausage, 67c.; pressed Guayaquil, 60c.; Panama, 50c.; Carthagena, 40c.; African small ball, 45c.; do. soft ball, 42c.; Congo ball, 52c.; do. thimbles, 52c.; flake, 41c.; tongues, 50c. for large; Assam, 49@65c.; Madagascar Pinky, 75c.; black, 55c.; Borneo, 54c.; Mozambique, white ball, 55c.; Red ball, 67c.; Sierra Leone, 52c.; Loando Nigger, 60c.

The trade in mechanical goods is very satisfactory; belting is in good request and garden hose promises well. Prices have been advanced 10 to 20 per cent. European manufacturers are said to have advanced prices 25 per cent. Rubber thread manufacturers have raised prices to cover the increased cost of raw rubber. Elastic web goods have been advanced 35 per cent.

The Rubber Shoe Market.

THE only traffic is in tennis goods, orders for which come in fast and thick, says the *Shoe and Leather Reporter*. As there were but little, if any, goods on hand at the beginning of the season, everything has to be made up, and the jobbers chafe at the delay and send to the agents of the companies urgent appeals for dispatch. Tennis shoes most in demand are those ranging from 40 to 50 cents; better grades, for which there is a good call, sell at 60 cents, while specialties in the tennis line run up as high as 80 cents, 10 off. From present indications the season will exceed in volume of trade any previous year. Most of the mills are running, making up boots and light goods, on which lines they have had such a demand for the past season as to leave practically no stock on hand. The increasing cost of raw material has pressed upon the consideration of manufacturers the desirability of securing an advance on goods.

Free Want Department.

Manufacturers in need of Managers, Superintendents, Foremen and help generally, are invited to make free use of this Department; and all persons seeking situations in the rubber or electrical trades, are cordially invited to do likewise. Advertisements of Machinery and Supplies Wanted will also be inserted free of charge. And, in all cases, if the first insertion of the advertisement does not accomplish the result, its repetition is desired by us.

LETTERS remain uncalled for, at this office, addressed to "C. G. O.," "C. M." and "J."

WANTED—A hard-rubber man, must understand compounding and manufacturing thoroughly. Address "D," P. O. BOX 1325, Boston, Mass.

FOR SALE—Three rubber band and stock cutting machines, as follows: One new, in perfect order, $225; one nearly new and in good order, $200; and one fairly good, $150. Address "E. W. H.," INDIA RUBBER WORLD.

FOR SALE—A good second-hand vulcanizer, 5x6½, in perfect order. Will be sold very cheap. Address "S. J. J.," INDIA RUBBER WORLD.

FOR SALE—Three band cutting machines for cutting band tubes and light cord for all kinds of mould work. All in good order and will be sold at a reasonable price. Address "H. H. H.," INDIA RUBBER WORLD.

INFORMATION WANTED—Will any manufacturer of India rubber asphalt please send his address to the subscriber, with sample and price of goods? Address "MEMORANDUM," INDIA RUBBER WORLD.

WANTED—Man who is competent to take charge of calendering and mixing room in a hard rubber factory manufacturing combs. Steady employment may be obtained. Address stating experience, "COMBS," INDIA RUBBER WORLD.

WANTED—Two rubber grinders or mixers, rolls about 14x40. State size and price and where they can be seen. HODGMAN RUBBER CO., No. 459 Broadway, New York.

WANTED—A line of rubber samples, druggists' and Mackintoshes. Address "777," INDIA RUBBER WORLD.

WANTED—Good travelling salesman on mechanical rubber goods, for Northern and Central Pennsylvania, and elsewhere. To a first-class man, having an established trade, liberal remuneration. Address, giving particulars, "X. Y. Z." INDIA RUBBER WORLD.

WANTED—A position as travelling salesman, with some manufacturer of India rubber goods, by a commercial traveler, who has had several years' experience in that line. Has an extensive acquaintance with the jobbing trade, and is acquainted with the full line of rubber goods; first-class unquestioned references. Address "RUBBER SALESMAN," INDIA RUBBER WORLD.

WANTED—To buy vulcanizing press for stamp rubber. A second-hand one would do. Address W. E., INDIA RUBBER WORLD.

A PARTY having a large rubber factory with stock, etc., all in good working order, situated on a large beautiful farm with house and store (near New York City) is anxious to get some good man or a party with a little capital to run the same with them. A splendid opportunity for a superintendent or any good man. Address or call at No. 100 Greenwich Street, office of the U. S. and I. Rubber Works Co., care of FITZHUGH SMITH, New York City.

WANTED—A rubber washer or cracker in good condition. State size, price and where it can be seen. STANDARD RUBBER CO., No. 100 Congress Street, Boston.

WANTED—First-class salesman on mechanical rubber goods for New York City. Must have trade already established. Liberal salary paid for the right party, and line of goods furnished that are already popular on this market. Address A. B. C., INDIA RUBBER WORLD.

WANTED—Position with some Rubber Factory as salesman for the West. Five years experience with the Jobbing trade. Address "TORONTO," INDIA RUBBER WORLD.

WANTED TO PURCHASE—A Three-roll Calender in first-class order for clothing, a mixing mill, a small washer, and ten Singer's Sewing Machines to run by steam. Address T. & Co., INDIA RUBBER WORLD.

WANTED—By a man with seven years' experience in selling Mechanical Rubber Goods, a position as salesman in store or on the road. Address "J.," INDIA RUBBER WORLD.

WANTED—By a young man of experience, who understands the Rubber business perfectly, a position as traveling salesman for a first-class Rubber House in the Lackawanna & Luzerne Co's. Pennsylvania Coal Regions. Can command a first-class trade. Reference given. Address "E. M," Scranton Rubber Co., Scranton, Pa.

WANTED—As Superintendent and General Manager a man thoroughly acquainted with the manufacture of Druggist's Rubber Sundries. Must be first-class in every respect. Address C. G. O., INDIA RUBBER WORLD.

WANTED—By a man with twelve years experience, a position as superintendent of factory, making either rubber clothing or carriage cloth. Address S. A. M. INDIA RUBBER WORLD.

WANTED—By a first-class salesman a position as traveling salesman for rubber clothing or boots and shoes. Address L. M. INDIA RUBBER WORLD.

WANTED—By a young man with four years experience in the rubber business, a position in a store or anywhere where he can earn a living. Can furnish references. Address E. A. SPRAGUE, 61 Prospect street, Worcester Mass.

WANTED—The address of some firm that manufactures a good grade of Hyposulphide of Lead for Rubber Works. Address "O. X," INDIA RUBBER WORLD.

WANTED—Address of a manufacturer of a warranted article in Sulphide of Zinc. Address "O. X," INDIA RUBBER WORLD.

WANTED—Will any maker of a first-class band cutter please send me his address? "M. N. D," INDA RUBBER WORLD.

WANTED—Man thoroughly posted in the manufacture of hard rubber. Address "F. C. T," INDIA RUBBER WORLD.

WANTED—A good hose maker. One who is generally posted on general matters in mechanical rubber goods. Must be a sober man and one not afraid to work. Address A. A. A. INDIA RUBBER WORLD OFFICE.

WANTED—Address of parties manufacturing presses for the vulcanization of stamp rubber. Address O. A. N. INDIA RUBBER WORLD OFFICE.

WANTED—Man who is thoroughly acquainted with the packing and shipping of Druggists Sundries Rubber Goods. To reliable man, a good position will be given, with fair salary. Address "O." INDIA RUBBER WORLD.

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